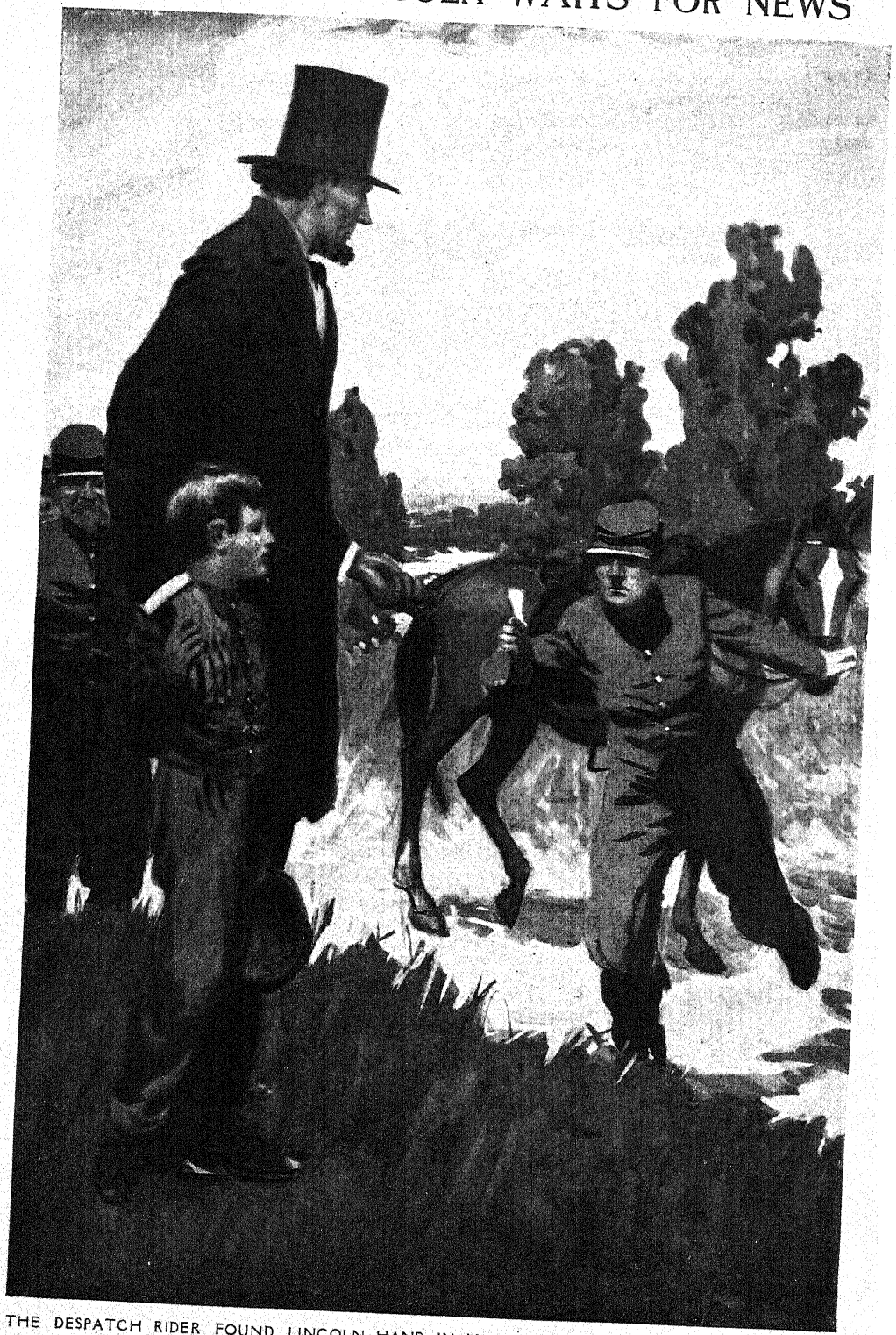
ABRAHAM LINCOLN WAITS FOR NEWS



THE DESPATCH RIDER FOUND LINCOLN HAND IN HAND WITH HIS LITTLE SON, WAITING FOR THE ENDING OF THE CIVIL WAR

THE BOOK OF KNOWLEDGE

THE CHILDREN'S ENCYCLOPEDIA

EDITED BY

ARTHUR MEE

LONDON

The following are the Departments into which the Work is divided

PLANT LIFE · OURSELVES · COUNTRIES
PICTURE ATLAS · FAMILIAR THINGS
MEN & WOMEN · ANIMAL LIFE
EARTH AND ITS NEIGHBOURS
THINGS TO MAKE AND DO
LITERATURE · THE BIBLE
HISTORY · WONDER
STORIES AND LEGENDS
POWER · POETRY
SCHOOL LESSONS
ART · IDEAS

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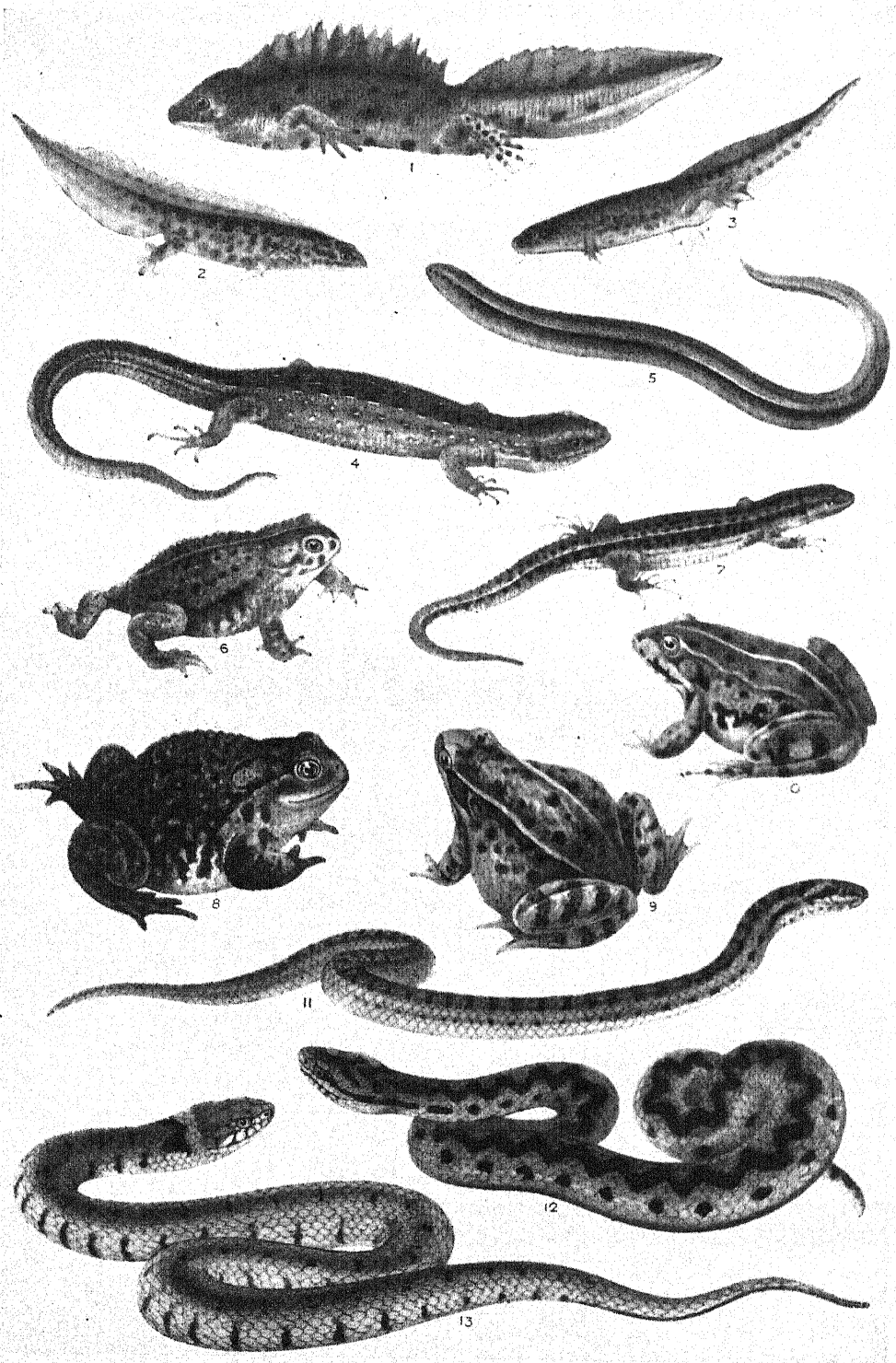

1. GREAT CRESTED NEWT 2. COMMON NEWT 3. PALMATED NEWT 4. SAND LIZARD 5. SLOW-WORM, OR BLIND-WORM 6. NATTERJACK TOAD 7. COMMON LIZARD 8. COMMON TOAD 9. COMMON FROG 10. EDIBLE FROG 11. SMOOTH SNAKE 12. VIPER OR ADDER 13. COMMON SNAKE

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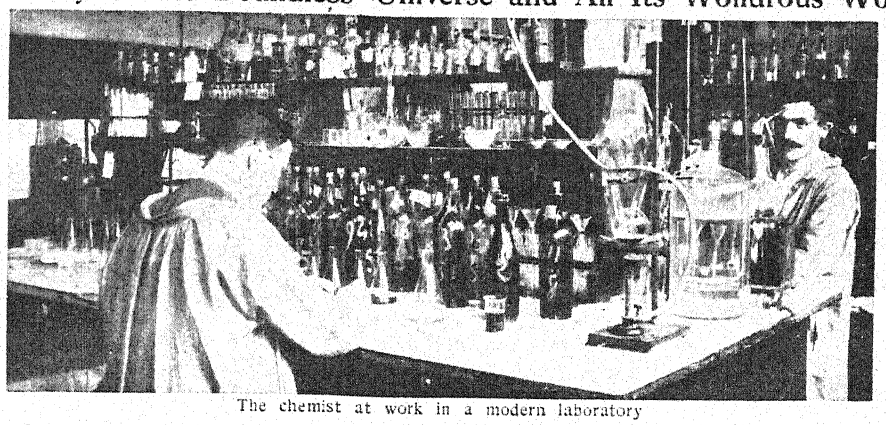

The chemist at work in a modern laboratory

CHEMISTRY IN THE WORLD'S LIFE

A PHILOSOPHER of two thousand years ago said that happy was the man who could learn the causes of things ; and it is true that one of the greatest gifts of the Creator to mankind is the divine curiosity which seeks to know always how and why things happen in the Universe around us, how the stars move in their courses and why the elements unite with one another, or displace one another, in the chemical compounds which are the substance of most earthly things.

Chemistry is the science which, while never satisfied because it can never come to the end of knowledge, unceasingly probes the secrets of the composition of chemical substances. Many great chemists have toiled at their work with little or no reward except the joy of discovery. Yet, except to such minds as theirs, chemistry would be a dull subject if it told only of how many atoms of oxygen and nitrogen and carbon substances were composed, without showing what use could be made of this knowledge.

There need be no doubt about chemistry's gift in that direction. There is hardly anything we use, from a tube train to a lead pencil, or anything we wear, and not a great number of the things we eat, which is not indebted to chemistry for the knowledge of how to make it, prepare it, or improve it. Chemistry takes hold of this old Earth, wrings its materials out of it, and makes them ready for service. It does this mostly by very intimate knowledge of what those materials are made of, down to their last atoms or molecules, as well as the way the molecules can be got to change partners with each other so as to transform one substance into another. Without this exact knowledge chemistry would never get very far, for, when one comes to consider chemical processes, they are usually simple and few in number.

The chemist, for example, dissolves one substance in another, or, as he would say, prepares solutions of them like salt in water, or calcium carbonate—which, when in water, gives it hardness and furs our kettles. Or he may precipitate substances from a solution, which is to drive them out of it. Or he may filter them out ; or distil them out by boiling the solution and the solvent and catching the vapours.

When chemistry comes into play in the things of daily life its operations must be conducted in the easiest and cheapest way. The ease of the operation will depend on the chemist's knowledge of the qualities and behaviour of the substances with which he has to deal; the cheapness will follow as he finds the best way of converting these properties and behaviours to its own uses. That is the part the chemist plays in the industries of daily life.

The chemist has the whole Earth as his raw material. Even if he began with the rocks he would have abundance of chemicals on which to work, though the chemical elements would be few: calcium in the forms of limestone and chalk and marble; magnesium, which joins up with the calcium with the aid of the commonest known acid, that of carbon; and silicon which, joined with oxygen, becomes sand or quartz, and with the help of water goes into silicates, or, when aluminium comes into the family party, becomes clay. Out of these few elements and their combinations with materials, one of the simplest stuffs that man made (out of the limestone) was mortar. The chemist took a hand in the middle of the nineteenth century and improved on the mortar so as to make cement as good as that of ancient Rome.

THE USEFUL GAS THE CHEMIST HAS OBTAINED FROM CALCIUM

But this is only the beginning of what the chemist did with calcium. Out of calcium oxide, or quicklime, he has, by heating it with coke and then treating with water, obtained acetylene gas. By adding sulphuric acid to lime he has obtained plaster of Paris. Out of silicon comes silica, and from silica comes glass; and what the chemist has done to glass, which is a very peculiar chemical substance, almost like a petrified liquid, would take a whole volume of The Children's Encyclopedia to tell. During the Great War a government official sought Mr. Powell, the glassmaker of Whitefriars, and asked him if he could make optical glass. "What sort of optical glass?" responded Mr. Powell. "There are at least 35 kinds!"

Out of clay the silicate of aluminium, or rather out of a special clay found in France and America, the chemist has driven out the aluminium so cheaply that it is now cheap enough for most housewives to buy; and, chemically mixed with other metals, has a future which cannot yet be measured.

TAKING NITROGEN FROM THE AIR TO FERTILISE THE SOIL

The chemist had turned his attention to clay long before aluminium founded an industry, and it is to his ingenuity that the glazes which waterproof it have been made cheaper and cheaper, and better and better, till there is nobody who does not use chemically prepared clay in the bowl in which he washes, or the cup from which he drinks, every day of his life. But this is no more than a fragment of the fabric of chemical industry which has been built up in every modern country. All countries depend for their prosperity on their agriculture and their manufactures. But the farmer becomes more and more dependent on artificial manures which, in the form of nitrates, are made by the chemist.

What is called the nitrogen problem is the problem of taking from the air the nitrogen which it can spare, and fixing it chemically in the form of ammonia and nitrates which will fertilise the soil. The chemist is solving that problem, but he is far from having done it so cheaply and safely that there will always be enough nitrates to make wheat grow as fast and as plentifully as the growing populations of the world want it.

Then there is potash. That is an old story. Every nation wants potash, or potassium salts, of one kind or another, to help to make matches, soft-soaps, glass; or for calico-printing, and wool-washing; or for adding to baking powders. Before the war caustic potash was fourpence a pound, in the war it went up to four and sixpence, because the potassium salt deposits were all in Germany. But they would not have been much use there if the Dutch chemist Van't Hoff had not found the way to turn them to account.

THE HEAVY CHEMICALS WHICH ALL INDUSTRIES MUST HAVE

At the bottom of the chemical industries the things that are wanted are not many in number. They are called the heavy chemicals, and are such substances as nitrates, or the caustic potash just mentioned, or sulphuric and nitric acids. What the chemist strives to do with these is ever to find such improved ways of making them that they will become cheaper. Sir William Pope, the most able chemist in England as we write, has said that unless a powerful stream of sulphuric and nitric acids can be pumped through the arteries of the chemical industries they will stop from heart failure, and with them our manufactures will grow feebler and feebler, because there is not one manufacture, from cotton-spinning to that of making steel rails, which does not use chemicals.

After the heavy chemicals—to which we must now add the name of benzol, which comes straight out of coal-tar—are the intermediate chemicals. These require immense manufactories and staffs of chemists if they are to keep up their cheapness. Benzene, and forms of napthol

and phenol are a few of them. These intermediate chemicals England had to make for herself during the war because she could no longer obtain them from Germany, and she built huge factories at Huddersfield and Manchester to do so. They served the purpose, but, big as they were in extent, they were not large enough in the number of first-class chemists they employed to compete on equal terms with the German chemical strongholds on the Rhine, which, besides making heavy chemicals and intermediate chemicals in the cheapest possible way, employ thousands of trained chemists where the English factories employ tens, to convert intermediates into fine chemicals.

The fine chemicals are those used in dyes, indispensable to the woollen, cotton, and silk trades; and to drugs, by which we mean medicines of all kinds, including disinfectants, antiseptics, anaesthetics, and perfumes and photographic materials.

THE FINE CHEMICALS WHICH HELP US TO ATTACK DISEASE

Even that does not exhaust the range of the fine chemicals, or the uses to which now and in the future they may be put. In the last ten years disease has been attacked by fine chemicals in a new way.

When the body is attacked by disease, especially when the disease is caused by a parasite, it is often extremely hard to drive the parasite out because the drugs that would harm it would harm the body of man or other animal which the parasite infests. The German chemist Ehrlich invented a way of poisoning the parasite by a chemical which would destroy it but would not injure the animal body. In order to do this hundreds of subtle chemical combinations have to be tried before the right one is found. One of the latest attempts in this way is to poison the parasite which causes Sleeping Sickness, and the latest chemical found to do this was called Baeyer 145, to denote that the firm of Baeyer had tried 144 chemical combinations before finding the right one.

From these examples it will be seen that the chemist's search for new combinations of chemicals is endless, and the sums spent on finding them are often very large, as in the example of the £500,000 which was spent in discovering the secret of making artificial indigo, though that sum was repaid many times over afterwards.

These discoveries are not made by chance. It was patient enquiry which found that the coal-tar oils—those benzenes, napthols, phenols—could enter into combinations which made the most powerful medicines, the most brilliant dyes, the loveliest perfumes.

THE MANY VALUABLE PRODUCTS THAT ARE OBTAINED FROM COAL-TAR

From these experiments, and others like it, has sprung a world-wide industry of fine chemicals. Whole volumes are written on the valuable substances which the chemist has drawn out of the black and sticky coal-tar. Let us glance first at the two main classes of them.

The coal is first distilled by heating in ovens where it does not come into contact with the air. From this is got first the gas which lights streets and houses, then a watery liquor containing ammonia, then the coal-tar, and then coke. When coal gas is wanted the ovens are heated to about 1850 degrees Fahrenheit, and the coal-tar which comes off is rich in benzene and the things to be obtained from benzene. Benzene is the grandparent of the aromatic chemicals, so-called because many of them have strong smells. The children of benzene are toluene, phenol, cresol, napthaline, and anthracene, and the grand-children are an endless array of drugs and dyes. If the distillation of the coal is carried on at the lower temperature of some 850 degrees Fahrenheit, the mixture of hydrogen and carbon which come off are called fatty compounds, because they are much like animal and vegetable fats and oils. Motor-spirit, some lighting oils, and vaseline are among them.

The eight or nine chief things got from coal-tar—benzene, toluene, xylene, phenol, cresol, napthalene, and anthracene—are treated in various ways by nitric acid, sulphuric acid, chlorine, and caustic soda, and from them are got some two hundred different compounds which might be called the second generation of intermediate chemicals; and from these some 900 to 1000 finished dyes are prepared.

A CHEMIST'S GREAT DISCOVERY AND THE REWARD THAT WENT TO OTHERS

We cannot go into all of them; it will be enough to show how the chemists proceed, and we must begin at the beginning with the mauve colour first found by Sir William Perkin. It was known before George Stephenson's Rocket that benzene, treated with nitric acid, could be turned into nitro-benzene, which had a pleasant smell and was used as essence of mirbane

for scenting soap. When this, in its turn, was acted on by acetic acid and iron filings it gave up aniline. Perkin was experimenting with aniline when he obtained the first aniline dye which became known as mauve. Perkin was a good chemist but an indifferent manufacturer, and others reaped where he had sown. The next step, taken by the chemists Medlock and Nicholson, was to make magenta, in much the same way but at less cost, and by treating magenta with other acids the chemists brought out blue. Hofmann, who was a teacher of chemistry at the City of London School, obtained violet, and, more than that, he explained what chemical actions did or did not take place. He went over to Germany and stayed there, and German chemists so far explained everything that was taking place in the combinations of hydrogen and carbon molecules in the coal-tar products that the whole range of the colours opened up. These were the earlier coal-tar dyes. They dye silk and wool well, but cotton not so well. As they were apt to fade, however, the chemists took a farther step.

THE RED DYE USED FOR THE MUMMY CLOTHS OF TUTANKHAMEN

They found that, by adding nitrous acid to aniline, they got something that would join up with some of the compounds such as napthalene, and make dyes which dye cotton directly and are either fast or slow fading colours. Such were Bismarck brown, Congo red, various yellows, an orange, and a black. Then they began to add and subtract molecules and atoms from another coal-tar product (anthracene) and so they got Turkey red, one of the oldest colours known to man. The mummy cloths of Tutankhamen were dyed with it. Then came basic dyes; and lastly, leaving out some of the intermediate steps, came the dyes which are now made in shades from red to blue and can be washed or exposed to strong sunlight without fading.

But in making each and every one of these dyes the chemist has always had to seek ways of never wasting any of his material, however cheap it may seem; and, if anything is left over, of using it for something else. It was from this unchanging need that the by-products of the chemical factories arose. The first chemical drug (chloroform) was found by Liebig when nitro-benzene was used only for scenting soap. It was fifty years later that antipyrine, the chemical used to reduce the blood temperature in fever, was made from benzene and aniline. There are several other antiseptics from the same source. Other products are the anaesthetics from coal-tar. Chloroform is no longer obtained from it, but stovaine and alypine are, and these produce local insensibility to pain. They are now less used than a few years ago. Then there was the great discovery by a Japanese chemist, Takamino, of adrenalin which is now artificially made from the coal-tar products.

THE SWEET SCENTS THE CHEMIST BRINGS FROM THE COAL CELLAR

Saccharin and saxin are the sweet substances made from coal-tar; sulphonal and veronal and trional are sleeping drugs; pyrogallic acid and metol and amidol for the photographer are from the same bounteous spring; and out of it comes nearly everything we like to smell—the sweet woodruff and meadowsweet, the musk that is vanishing from the old-fashioned garden, the hawthorn blossom, the odour of cinnamon and the rose.

We have dwelt on this long chapter of the chemist's searchings and findings in the coal cellar because it is one of the fullest in detail and easiest to grasp. But there are other chapters and other volumes which are as great and will never in our day be ended. There is the extraordinary chapter which the chemist calls *catalysis*; and which, having begun as a sort of side-path of research into the causes of things, is now becoming one of the most powerful implements in the chemistry of industry.

THE WONDERFUL CATALYST AND WHAT IT DOES

A catalyst is a substance which acts like the wand of a magician. Suppose we have a tube containing hydrochloric acid and tin. Nothing happens. Drop into it a drop of liquid in which platinum is divided up so finely that it is almost in the state of molecules, and at once hydrogen begins to boil off. The two-hundredth part of a grain will start the action, and at the end the platinum will remain *exactly what it was*. There are numerous catalysts—metals and others, and many living ones such as yeast.

All are alike in promoting these extraordinary chemical actions among other substances without themselves being altered.

The chemist's patient, tireless search for making new combinations, and for dissolving old ones, is never at an end; and every fresh addition or subtraction leads in the end to a way of making fresh use of the common elements of the Earth.

Young William Shakespeare brought before Sir Thomas Lucy on a charge of poaching

SHAKESPEARE AND MILTON

THE two Englishmen, who, apart from men of action, represent most completely and permanently the greatness of the English race are William Shakespeare and John Milton.

The most surprising thing about Shakespeare is how little that is absolutely definite we know about his ordinary life, though he died only a few years more than 300 years ago. We can trace that astonishing life in outline but with a tantalising scarcity in details, though a whole library of books has been written about him.

The chief difficulty is to conceive a man of such great genius as his works disclose who yet lived a very ordinary sort of life, for what little we do know of England's greatest poet does not fully bear out the imaginary picture of the man we are apt to draw in reading his plays.

In the little town of Stratford-on-Avon, still one of the most beautiful in the green Midlands of England, William Shakespeare was born on April 23, 1564. His father, although he had many ups and downs in his life, and seems to have been a jack-of-all-trades, cannot exactly be said to have been "in humble circumstances," as he was well-known in the town, and was for a time its mayor.

For all that he was not a successful man, and the time came when his son William had to lend him money to help him out of difficulties. His father could not write his own name, and the only examples of Shakespeare's own signature which have been preserved might be thought to indicate that even he, much as he wrote, signed his own name with difficulty!

The boyhood of Shakespeare would, in all probability, be passed like that of any other tradesman's son of the time, with the healthy sports of a rural town for pastime, and the local grammar school as his home for learning. He had an excellent teacher at the grammar school, Master Walter Roche, who received the handsome salary of £20 a year—in those days a shilling was of as much value as fifteen shillings or a pound today—for acting as headmaster.

William would have to be up betimes to take his place in the old grammar school, which is still standing, though considerably altered; for lessons began at six o'clock in the morning in the summer weather, as daylight was precious in those days, when such wonders as gas and electric light were still undreamed of. But he would not have far to go

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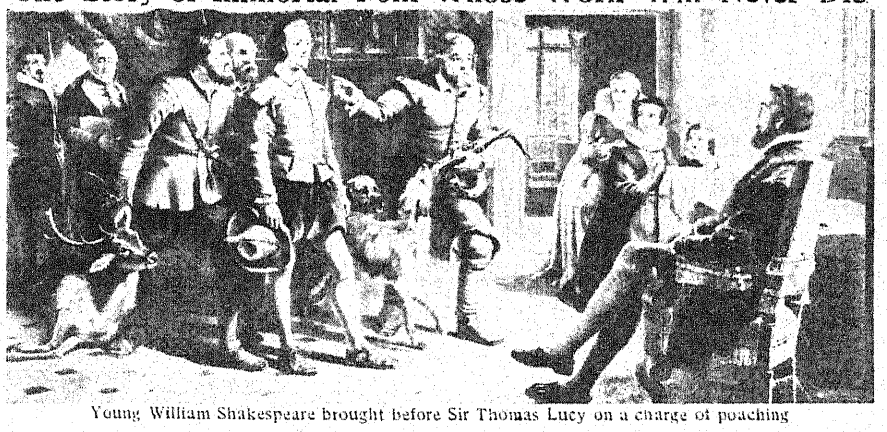

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Unwillingly to school,

as it was an easy walk from his father's house to the local grammar school.

It is more than likely that young William Shakespeare was dressed just like the other lads of the town, in a long and loose cloak hanging nearly to his ankles, with short, wide sleeves, through which his arms were thrust. But his cloak would not altogether hide the more picturesque part of his attire, consisting of a short, well-fitting jerkin, his puffed hose sticking out from beneath the waist to the thighs, above his long, dark-coloured stockings. His shoes would be strange affairs that bulged somewhat at the toes, being tied with long ends of their own material.

As for the boy himself, we know him for a bright-faced lad with high forehead and dark, abundant hair, his eyes of a light hazel colour, full of mischief and healthy merriment. Whether he was a diligent scholar, the pride of Master Roche, or something of a trial to that worthy teacher, we do not know; but the poems he wrote in after life are so full of varied learning that we cannot but suppose the headmaster, who was famous for his teaching of Latin, found young Will Shakespeare one of his brightest and aptest pupils.

THE CURIOUS NATURAL HISTORY TAUGHT WHEN SHAKESPEARE WAS AT SCHOOL

If a schoolboy of today were to read the lessons in natural history which Shakespeare and his fellow scholars were taught, he would have good cause for laughter. "The blood of an elephant is the coldest blood in the world, and dragons in the scorching heat of summer cannot get anything to cool them but this blood." That is a startling statement from a natural history of his time, and will show how little Shakespeare could have known of the ways of wild life outside of his native woodlands, where, as a young man, it is said, he hunted the deer, and was once haled before a magistrate as a poacher.

The crabbed and crooked style of writing known as old English was the style taught by Master Roche, who was rather behind the times, as even then in London and the universities students were being taught that open flowing script known as Italian, such as we write today. If we knew nothing else about Shakespeare his signature would prove that he had been educated in a provincial town, and it was by those very signatures that through a happy discovery of a fragment of his writing of a play, the genuineness of his work as a dramatist was proved. But whatever the defects of the course of education at the Stratford Grammar School may have been, William Shakespeare learned enough there to enable him to express, with all the power of his wonderful genius, the great and beautiful thoughts that later blossomed in his mind. He received during his six years at the school the key with which he was later on to unlock the treasure-house of his imagination for all the world and for all time.

THE MYSTERY OF THE YEARS AFTER SHAKESPEARE'S SCHOOLDAYS

Of Shakespeare's youth we know as little as we do about his schooldays. He would be fourteen years of age when his father's fortunes had sunk so low that, in all likelihood, John Shakespeare could not allow his son to continue longer at school, and would have him withdrawn that he might earn something to help in keeping the home. To what employment the young man turned his hand, we do not know for certain.

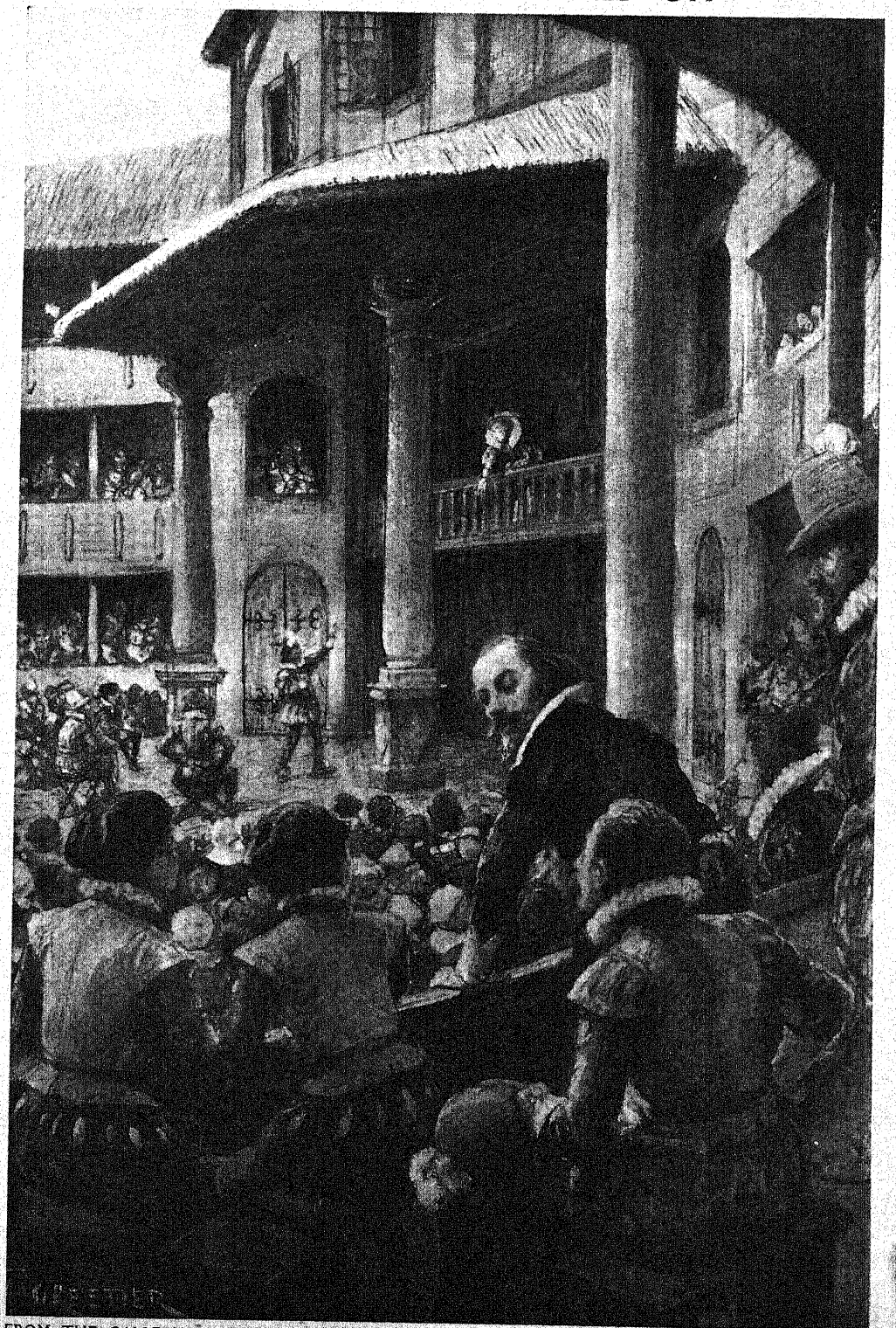
It has been said that he was engaged as a butcher's boy, perhaps in his father's shop. It has also been said that he became a lawyer's clerk, the remarkable knowledge of the law which he displays in his writings being quoted as evidence in support of this, though it is no good reason for supposing he was ever so engaged. What we do know for certain is that he was none too wise a youth, for he was not quite nineteen when he married Anne Hathaway, the daughter of a well-to-do farmer near Stratford. His wife was eight years older than he, and we cannot suppose that his unfortunate father was happy at his headstrong son shouldering the responsibilities of married life when his help was so needed at home.

THE POOR ACTOR WHOSE PLAYS WERE THE SUCCESS OF LONDON

Three or four years after his marriage, and when he was the father of three children, Shakespeare went to London to seek his fortune. How he lived in London during his early years there, we do not know, but the story that he was glad to hang about the theatre to earn a little money by holding gentlemen's horses may very likely be true. We see it illustrated on page 983. About 1587 he became a member of one of the very few theatrical companies which existed in those days.

By 1590 he had begun to try his hand at writing, or more likely revising, plays,

SHAKESPEARE LOOKS ON



FROM THE GALLERY OF THE OLD GLOBE THEATRE AT SOUTHWARK SHAKESPEARE LOOKS ON AT THE PERFORMANCE OF ROMEO AND JULIET

while he was now himself appearing on the stage as a performer. He does not seem to have been a brilliant actor, and even when his own plays were acted he never had a leading part to fill in them. Fortunately for the world, he was something far greater than the greatest actor that ever lived, and it is to the credit of the Londoners of his time that his series of great comedies and tragedies, which began, most likely, with Love's Labour Lost in 1591, and ended with The Tempest in 1611, met with so hearty a reception that their author, who had also become part owner of the Globe Theatre, was a comparatively rich man by the year 1600. That was because his fine dramatic power in presenting a play enabled him to become what is now called an acting-manager at a leading theatre.

Unlike most of the actors and poets of his time, Shakespeare was a thrifty man, and so by the year 1597 he was able to purchase the largest house in Stratford, known as New Place, which stood close by the grammar school of his youth.

THE DESIRE OF MEN TO STAND WELL IN THE EYES OF THEIR FELLOWS

He still lived in London, however, where he had a house near to the Blackfriars Theatre, and no doubt there was some element of pride in his purchase of New Place, for he did not occupy the house himself permanently until he bade farewell to London and the stage in 1612.

All men have a desire to stand well in the estimation of their fellow-townsmen, and probably Shakespeare was not above wishing to impress the folk of Stratford with an object-lesson in his worldly success. To see the son of the unfortunate John Shakespeare become the owner of the largest house in the town would impress them more than to know that he had earned fame in London as a poet and playwright. He would also have in mind the day when he meant to retire and settle down in comfort in his native town.

But the most successful years of Shakespeare came after 1600, when his popularity both as a dramatist and an actor was at its highest, and the success of the Globe Theatre brought him a splendid income. The theatres of those days did not resemble the luxurious buildings of our time. Outwardly, they looked not unlike a sort of castle tower without a roof. Around the inside of the walls the seats were fixed in three galleries above each other, and from one side the stage was built out, occupying almost one half of the interior of the theatre.

No scenery was used, and part of the audience sat in boxes behind and above the stage, and even at times on the stage itself, while the people in the arena or pit had to stand. Nor were there any actresses in Shakespeare's time. The female parts were all performed by boys or young men dressed like women, and thus the great dramatist, who conceived such sweet and noble characters as Rosalind and Desdemona, never saw them played on the stage by actresses.

THE QUIET YEARS IN THE LIFE OF OUR GREATEST POET

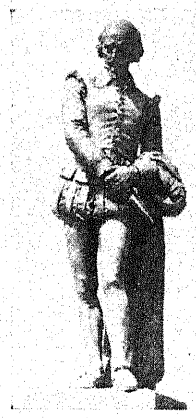
We know that so successful was the playwright Shakespeare in the later years of his life in London, that his income was as much as £5000 a year in the money of our day, and he was steadily adding to his landed possessions at Stratford, whither he withdrew from the gay and busy life of the great city, and settled down as a man of wealth and property in 1612. "The later part of his life," says the dramatist Nicholas Rowe, who edited Shakespeare's works in 1709, "was spent as all men of sense wish theirs may be, in ease, retirement, and the conversation of his friends." He saw both his daughters married, his only son having died in his twelfth year, and he went about among his townsmen just like an ordinary country gentleman. It is pleasant to contemplate this aspect of our greatest poet. The time had not yet come when men made a profession of literary work, and pretended to be a class apart from the general community.

THE MIGHTY MASTER WHO WAS CONSCIOUS OF HIS OWN GREATNESS

Shakespeare wrote his great plays only to supply his fellow-actors with something to perform, and they were immortal works because their writer had immortal gifts of mind which were fated thus to be conveyed to mankind at large. He went to no university to equip himself for the task, for no training of professors or tutors could have breathed into him one spark of the divine genius inborn in the man, which was bound to shape itself somehow.

Shakespeare came at the right time, when interest in the stage as a medium of poetic entertainment and instruction had revived. His native powers were so much greater than those of all the scholars of his day that even in an age

WORLD'S MONUMENTS TO TWO ENGLISHMEN



SHAKESPEARE IN PARIS

SHAKESPEARE IN LINCOLN PARK, CHICAGO

SHAKESPEARE IN NEW YORK

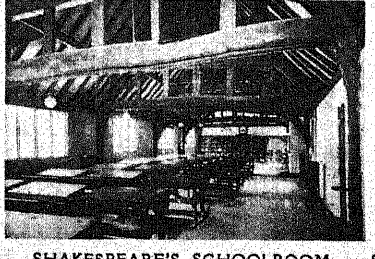
MILTON OVER HIS TOMB IN SAINT GILES'S, CRIPPLEGATE

SHAKESPEARE, CHAUCER, AND MILTON IN PARK LANE, LONDON

SHAKESPEARE OVER HIS TOMB IN HOLY TRINITY, STRATFORD

MILTON'S COTTAGE AT CHALFONT ST. GILES

SHAKESPEARE'S HOUSE AT STRATFORD-ON-AVON



SHAKESPEARE'S SCHOOLROOM

SHAKESPEARE AT WEIMAR

SHAKESPEARE'S BIRTHPLACE

when learning and scholarship were dearly prized, and he had less, in a scholastic sense, than many of his fellow-dramatists, he outshone, and will outlast, them all. In every sentence of his plays and poems we can see the easy, confident hand of a mighty master, and we know that he himself was conscious of his greatness, for he writes in one of his beautiful sonnets :

Not marble, nor the gilded monuments
Of princes, shall outlive this powerful rime . . .

In March, 1616, the poet was taken with illness, which is said to have been the result of a merry meeting with his friends, Michael Drayton and Ben Jonson, who had visited him at Stratford ; and on his birthday, April 23, 1616, William Shakespeare died in his fine house at Stratford. He was laid to rest in the chancel of the parish church, where over his grave these rather feeble words are carved on a flat stone :

Good friend, for Jesus sake forbear
To dig the dust encloséd here.
Blest be the man that spares these stones
And curst be he that moves my bones.

We know not who wrote these lines, though we are sure Shakespeare did not ; but no one has ever ventured to break this solemn command, and there the dust of England's greatest poet still reposes.

THE LITTLE LONDON BOY WHO WAS TO BE NEXT TO SHAKESPEARE

When Shakespeare died at Stratford there was an eight-year-old boy in the City of London who was destined to be not only the next great poet to Shakespeare in point of time, but, after Shakespeare, the greatest of all English poets.

John Milton was born in Bread Street, off Cheapside, on December 9, 1608. In those days it was the custom of tradespeople and others to hang a sign at their door exhibiting some device by which their place could be easily recognised. This old-fashioned custom is still observed by publicans. Among the many signs that decorated Bread Street three hundred years ago was one of a spread eagle. At the house so marked lived John Milton senior with his family, and there he carried on the profession of a scrivener. This work was in some respect like that now discharged by solicitors, such as drawing out wills and preparing other legal documents ; and scriveners were also lenders of money.

John Milton senior must have been of strong, independent character, for he had brooked the displeasure of his father by renouncing the Catholic religion, which had been the faith of his family, and adopting Protestantism.

THE STRUGGLE BETWEEN TWO TYPES OF THE ENGLISH MIND

He was thus one of the Puritans, as they were called, for those were the days when a great struggle was beginning between two different types of the English mind. Although the country was supposed to be Protestant, and the king a Protestant also, many people were at work to shake the religion of the land ; and while these would have permitted much that was loose and lax, there grew up against them others who, going to the opposite extreme, took the letter of the Bible rather than its spirit as their guidance, and became noted for their strict observance of religious duties gathered from the Old Testament.

These were the Puritans who, in the lifetime of the younger Milton, were destined to carry out a great revolution in England. Although the father of the poet belonged to those strict religionists, he was a man of literary and musical tastes. His qualities were inherited by his son, and the seed of poetry which young Milton had received from his Puritan father blossomed in time into one of the finest flowers of the world's literature.

The boy Milton would be about twelve years of age when he was entered as a scholar at St. Paul's School, his education before that time having been received at home from a Scots tutor. Great was the boy's love of books, for not even his weak eyes and the headaches which resulted from his close studies prevented him, even at this early age, from poring over his well-loved books far into the night.

THE WONDERFUL MIND OF THE SCHOOLBOY JOHN MILTON

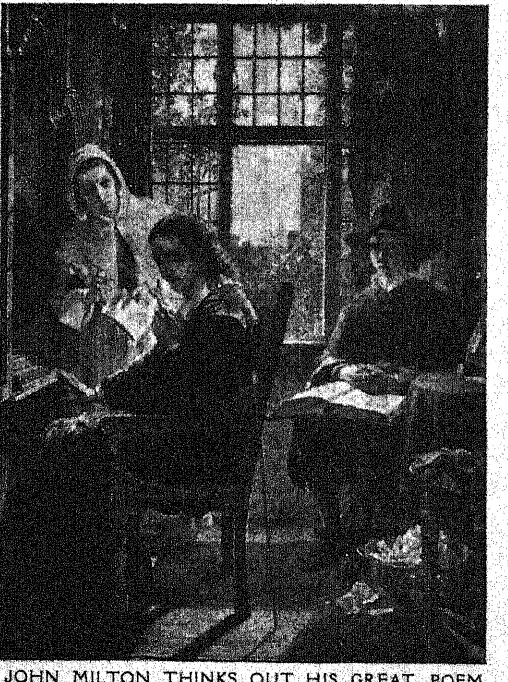
A day was to come when the strain thus placed on his sight was to leave him blind, but even then he had the consolation of knowing that he had used his eyes to some purpose by storing his mind with the richest knowledge of his age. For even as a schoolboy he had learned his Latin and Greek so well that he could write in both these classic languages in prose and verse, and of Hebrew also he knew something. Among his earliest efforts in verse-writing were translations of the 114th and 136th Psalms.

He was in his sixteenth year when he went to Cambridge University, where we

JOHN MILTON, THE PEERLESS ENGLISHMAN

BLIND JOHN MILTON DICTATING PARADISE LOST TO HIS DAUGHTER

MILTON, AS LATIN SECRETARY TO THE COMMONWEALTH, DICTATES A DESPATCH

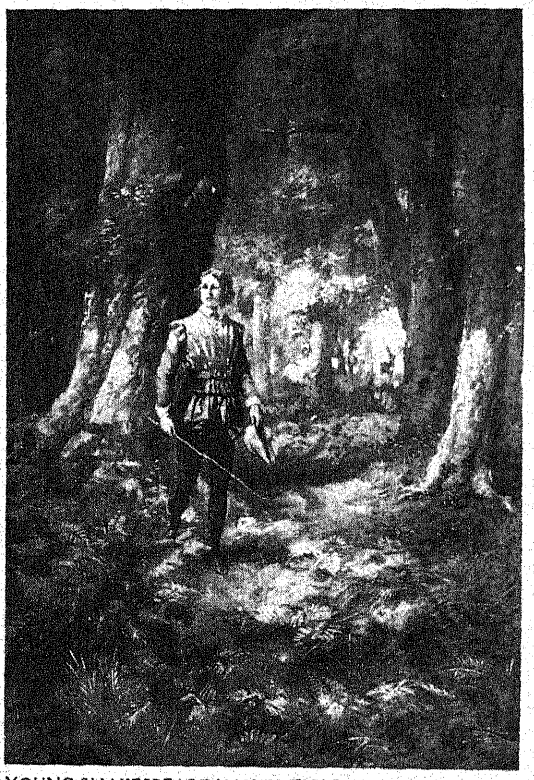


JOHN MILTON THINKS OUT HIS GREAT POEM ON SAMSON—From the painting by J. C. Horsley

are told his gentle manner, his long, light-brown hair, parted in the centre as we see it in the familiar portraits, his delicately coloured complexion, gave him, among his rougher classmates, so girlish an appearance that they christened him "the Lady of the College." But we may doubt if their taunts in any way ruffled his calm and independent spirit, as we know from his own words:

When I was yet a child no childish play
To me was pleasing; all my mind was set
Serious to learn and know, and thence to do
What might be public good; myself I thought
Born to that end, born to promote all truth,
All righteous things.

Sometimes the great man does not seem to know himself as great, but we have seen that Shakespeare was just as confident of the immortality of his poetry as Milton of the high destiny to which he felt himself called. And the study of his life also leaves us with the impression of a calm and noble spirit that was a stranger to haste, moving serenely but confidently onward to the great work that was designed for him.



YOUNG SHAKESPEARE WALKS THROUGH THE WOODS, DRINKING IN THE SCENES OF WONDER

He had been fully seven years at Cambridge when he left with the degree of M.A., and went to his father's country house at Horton, in Buckinghamshire, where five more years of his life rolled on in the study of books and Nature, and the writing of many poems which rank among the finest in the world.

His mother's failing health had kept him at home, but when she died he was free for a time to set out on his travels and to see for himself those wondrous towns and countries of the Continent whose stories and literature he knew so well. So for some fifteen months he wandered among the storied towns of Italy and France, and the influence of the classic scenes of Italy did much to shape his thoughts towards the later poetical achievements of his life.

When he returned to London in 1639 the struggle between the people and the king, which three years later resulted in the Civil War, had become so serious that the whole country was unsettled. But Milton was essentially a man of peace, and instead of taking part in this great agitation, except by writing a series of bitter attacks on the bishops, who were in league with the king, he devoted himself to the quiet task of teaching, and had a sort of boarding-school for a number of years in Aldersgate Street. But the bitterness of the struggle which was going on in these unhappy days entered into the poet's life in a strange way.

He married a lady who came of a Royalist family and had all the gay and flippant notions of the Cavalier class, who were the opponents of the Puritans.

As Milton was, in his ways of life, the most grave and frugal of Puritans, it was not likely that his young wife could immediately find happiness with him, and after a few weeks she returned to her father; but two years later, when the fortunes of war had gone against the Royalists and their supporters, and Mary Milton had learned that life is something more than dancing and merry parties, she returned to her husband, and even her father was glad to have the shelter of the Puritan poet's roof.

Milton, in the meanwhile, had been writing not poetry but prose, and his finest

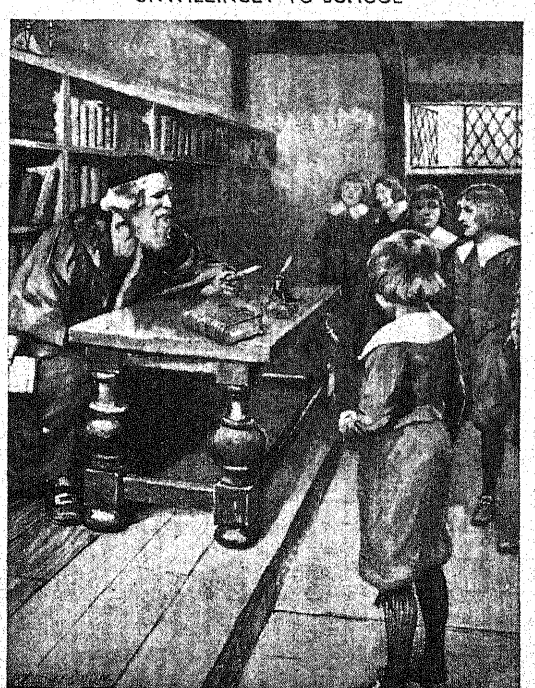
work of this period was entitled Areopagitica. That is a Greek word for an oration addressed to the Greek Parliament, which was known as the Areopagus, from the name of the hill on which it met; and Milton gave this title to his work because it was formally addressed to the Parliament of his own country.

The Areopagitica is a noble plea for the liberty of thought and especially the right to publish in print one's honest opinions, and is regarded as one of the finest examples of English prose writing.

Another prose work of Milton's, in which he defended the execution of Charles the First had an important bearing on his life, for it was esteemed so highly by the Puritan Government that Milton was appointed Latin Secretary to the Council at a handsome salary, his work being to draft the correspondence of the Government with foreign Powers, then carried on in the Latin language.

Some doubt exists as to the prominence of Milton among the men who were then governing the country. A lively modern critic, Mr. Augustine Birrell, has

SHAKESPEARE CREEPS LIKE A SNAIL UNWILLINGLY TO SCHOOL



THE SCHOOLBOY SHAKESPEARE AT HIS LESSONS

argued that he had nothing to do with the shaping of the foreign policy of the Commonwealth, and adds:

> The busy great men of the day would have been more than astonished, they would have been disgusted, had they been told that posterity would refer to most of them compendiously as having lived in the age of Milton. He was just a clerk in the service of the Commonwealth, of a scholarly bent.

This, probably, is an exaggerated view of his unimportance, for he was undoubtedly well known on the Continent as a trenchant defender of the Puritan Government against its continental critics. This part of his work is the least pleasant to contemplate now, for his great powers were not employed in it with the dignity that is inseparable from his writings as a poet and a champion of human freedom.

In 1653 he was left a widower with three young daughters to look after; but about the same time his eyes, which had been weak from boyhood, now failed him completely, and by the year 1654 the poet was blind. Still he faced his work as

Latin Secretary, first with an assistant, and afterwards with the aid of a colleague, Andrew Marvell, who was himself a poet of great power, and a man of fine character. For the sake of his motherless children he married again, but his second wife died some fifteen months after the wedding; so that Milton's daughters, at the most critical time of their lives, were left without a mother's guidance, and in later years were somewhat of a trial to their blind and helpless father.

THE WONDERFUL POEM MILTON WROTE IN THE SHADOW OF ADVERSITY

But if the eyes of his body no longer saw the beautiful things of Earth, the eyes of his soul had now far finer visions of the unseen world, and in his leisure time he was engaged upon the composition of his grandest work, the great poem of Paradise Lost. Meanwhile troubles of another kind were gathering round his devoted head.

When Cromwell died, and his weak son Richard succeeded him, only to let the country go over to the son of the slain King Charles, Milton, having written so much against the Stuart kings, had for a time to hide himself in the days of vengeance which marked the beginning of the Restoration. It says something for the friends of Charles the Second that the great poet suffered no personal punishment for his writings against Royalty.

There is no period of the great poet's life one would rather dwell on than those days when he was supposed to have sunk into obscurity, but was really making his name immortal, raising for himself a monument of fame that will outlast all others of his age. Deprived of his public office, and living in a humble house, though still above poverty, the poet's days were spent in dictating the majestic lines of Paradise Lost.

THE TEN POUNDS THAT MILTON RECEIVED FOR HIS IMMORTAL MASTERPIECE

It was during the Great Plague of 1665 that he removed with his daughters to a cottage at Chalfont, in Buckinghamshire, which he owed to the kindness of a friend, and here the greatest work of his poetic genius was finished. In 1666, the year of the Great Fire, Milton got a London bookseller to print Paradise Lost, and received £5, with another £5 when thirteen hundred copies had been sold.

He had still many admiring readers, though he received so little for his writing; but amid the gaieties of the Cavaliers, who now ruled England under Charles the Second, Milton's splendid poem could not be expected to touch the mind of the whole country as it would have done had it appeared in the sober days when Cromwell ruled, and the poet was admired as the greatest thinker in the land.

Paradise Lost is the noblest poem in the English language, and one of the grandest works of the modern world. It is founded on the Bible story of Adam and Eve, and how they came to be driven from the Garden of Eden. No description could convey any idea of the majestic grandeur of the poet's awe-inspiring pictures, the stately beauty of his verse, the dramatic fire and colour of certain scenes, the gentle pastoral beauty of others. It is one of the great treasures of our literature, which we all must read, and rejoice in the knowledge that its author was an Englishman.

The next work of Milton's, after his great poem, was a History of Britain, appearing in 1670, and in the year after that he published two more poems. Paradise Regained is a much shorter and not so fine a work as his great poem, though its subject is the more inspiring one of our Saviour triumphing over the temptation of Satan. Samson Agonistes, the title of the other, is a short dramatic poem, describing the last days and deeds of the mighty Samson, who, deprived of his sight, could yet exert his giant strength to the destruction of the Philistine temple.

THE SAMSON WHO DESTROYED THE TEMPLES OF FALSE GODS

It is really an expression of his own life and thought in his closing years; for the poet himself was something of a Samson all his life, and, not less after blindness had smitten him, was devoted to pulling down the temples of the false gods, his poetry being unmatched as a plea for righteousness, apart from the great books of the Bible.

The closing years of Milton's life were spent in the simplest fashion, and he had the companionship and devotion of his third wife, Elizabeth Minshull, whom he had married in 1663, to make up for neglect by his undutiful daughters. He died on November 8, 1674, and was buried in the church of St. Giles, Cripplegate, London. Milton remains for all time one of the great and statuesque figures of English history. In the fine phrase of Wordsworth, his soul "was like a star and dwelt apart."

THE FIRST FLAX-GROWER

You must go back to the old, old days before linen had been heard of.

There was at that time a certain peasant living in the Tirol who was very poor, but neither envious nor greedy. He lived in the valley, and in the summer he spent his days guarding sheep on the mountain.

He used to look up at the white snow-caps and down at the flowery world, and say: "Ah, well! It's a beautiful Earth! Who knows? One day I may be able to buy a sheep or two of my own. Perhaps tomorrow I may shoot a chamois, and then we shall all have a good meal." In this way he tried to forget that he was hungry, that his clothes were in rags, and that his wife was a cross, scolding woman.

One fine morning the peasant saw a chamois, just out of arrow-reach. He picked up his cross-bow and followed it. The animal moved quietly away. Intent on the chase, the peasant was led up and up the mountain, till the green slopes were left behind and he came to the region of eternal snow. Here was a great glacier, or ice-stream.

All at once the chamois, which had been going at a sober pace, bounded off, and was lost to sight in an instant. The peasant felt he could climb no farther, and he was about to return, very crest-fallen, when he caught sight of a cave in the ice. He entered, and found himself in a wonderful hall, supported by stalactites that stretched from roof to floor like columns of crystal. As he advanced farther he found that it was furnished like a palace, with all sorts of precious things, and suddenly he came on a group of beings seated about one who seemed to be their queen. They wore robes like silver mist, and crowns of Alpine roses in their hair.

They were all lovely, but the queen was bright with a wonderful radiance that filled the peasant with awe. He dropped on his knees, and craved the strange beings to pardon him for his invasion.

The queen spoke in a voice more beautiful than that of brook or bird.

"Go in peace," she said, "and take with you whatever you choose."

Now, the peasant was so exalted by the sight of this faerie world that he had no care for gold or jewels. He begged of the queen: "Lady, give me the blue flowers you are holding!"

She smiled, and gave him the nosegay.

"As long as these flowers are fresh you shall live. I will give you a measure of seed also. Plant it and guard it well. Now go, wise chooser."

The peasant stumbled out, clutching his flowers and his bag of seed, and went home still dazed by what he had seen.

Of course his wife was furious when she heard that he might have brought home a jewelled girdle or a golden flagon.

But the seed was sown, and in due time up came a crop of heavenly blue, the first flax flowers.

When the blossom was over a tall woman appeared in the field. She told the peasant how to harvest the flax, and how to spin and weave the linen from it. Very soon the whole countryside was coming to buy this wonderful new material, and the peasant never went cold or hungry again. Better still, his wife was so busy spinning, weaving, and blanching the linen that she had no time to scold or complain.

One day, when the peasant was a very old man, and his wife was sleeping in the churchyard, he saw that the faerie flowers were beginning to wither.

"My time is come," he said. He bade his friends farewell, divided up his goods, and then set off for the mountain.

It is said that a hunter saw him enter a cave in the ice, which no one ever saw again. Certainly he never returned.

HOW THE PEACOCK CAME INTO THE WORLD

JUNO was beautiful. Like the Queen of Olympus indeed she looked, with her lovely hair, her golden diadem, her commanding mien; and when she descended from the royal chamber, clad in the long tunic embroidered by Minerva, to seat herself on her throne by Jupiter there was no court so proud of its queen.

Yet Jupiter was not always happy, for Juno was suspicious, jealous, proud, wrathful, and they often quarrelled. Then the Earth itself would shake, or a storm would burst in the heavens. Terrible was the anger of Jupiter, who one day suspended Juno among the clouds. The gods greatly pitied their queen, but none dared set her free, for Jupiter had declared: "Woe to those who would help Juno; I would throw them crushed to Earth!"

At last Jupiter, troubled by many quarrels, decided to choose a wife among the mortals, and he set his mind on Io.

But in vain did Jupiter change his pretty maiden into a white cow to protect her against the jealousy of proud Juno. The queen had the beautiful Io taken to a closed meadow and entrusted to the care of Argus. Nothing could escape Prince Argus, for he had a hundred eyes, and fifty remained open while the others slept.

Yet Juno, thinking she had no more to fear, was mistaken, for the King of Olympus bade Mercury kill Io's guardian. Hard work that was! How can one catch a gaoler who sleeps with one eye open? "I will go to Morpheus," thought Mercury; "the god of sleep will know how to close the hundred eyes of Argus."

Morpheus had set his dwelling in an ever-silent land, where the Sun never shone; and here came Mercury, finding Morpheus on an ebony couch, a wreath of poppies on on his brow, and seeming in deep sleep. Dreams hovered all around him.

The swift messenger gently addressed his prayer to the god, and Morpheus, hardly opening his eyes, stretched his arms, yawned three times, and gave him a handful of poppies. Then, turning over, the king went to sleep again. Mercury, with his poppies, hurried out of the silent court.

Argus mounted guard around the meadow where captive Io lay, and near by Mercury stopped, took up his pipe, and began playing an air that Argus loved. "I do not hear you well, come nearer," cried the prince, and Mercury moved slowly on, still playing. His right hand held his pipe, the other waved the bunch of poppies.

It was day time, and Argus had his hundred eyes wide open; but as the messenger played on his pipe, and as the poppies gave off their soothing fragrance, the eyes of Argus began to close, and when the last had gone to sleep Mercury seized the guard and set the prisoner free.

But on the other side of the meadow was Juno, and, seeing the fugitive, she set upon the beautiful cow one of those flies which harry flocks by night and day. Away ran Io, but the fly clung to her through plains and hills. As she bent to the grass to browse, or stopped by the brook to drink, the fly would sting her furiously, and at last, her feet torn by the stones, she fell exhausted, far off in a foreign land. Her cries became fainter and fainter until they died away. Io was dead!

Hidden in the grasses of the meadow, the Queen of Olympus had discovered the sleeping Argus. "Ah, Prince Argus," she cried, "they thought to close your eyes for ever, but I will open them for ever, and you shall be my watch." Suddenly appeared a peacock with a hundred eyes strewn superbly on the broad fan of his tail, and he remained Juno's for ever. Thus the peacock was born.

HARRIET TUBMAN

In the days when slavery hung like a "dull, gloomy cloud," as Charles Dickens said, over the Southern States of America there was an unhappy Negress named Harriet Tubman.

It is hard to imagine anyone more helpless than a woman slave in those infamous days, yet this one lived to be called The Moses of her People. Surely her story should be remembered.

When Harriet Tubman was only thirteen she stepped between an angry overseer and the slave who had roused his temper. A heavy iron weight flung at the Negro struck her on the head. To the end of her days she felt the effects of this blow, suffering from attacks of pain and faintness. There was something symbolical of her whole life in this incident.

Harriet spent her youth in working, as the significant phrase has it, like a slave—that is, as hard as it is possible for a human being to work—with no time wasted on education or pleasure, and very little on sleep. She not only scrubbed and swept like a woman, but she drove a plough, carried casks, chopped wood, and dragged logs like a man. Yet, even so, she hoped to find some happiness in marriage. Alas! her husband soon ceased to care for her, and the poor girl felt that her load was heavy beyond endurance. She ran away to Philadelphia, to the Northern States that were not overshadowed by the "dull, gloomy cloud" of slavery.

HARRIET TUBMAN, THE SLAVE WHO LED HER PEOPLE OUT OF BONDAGE

Harriet became a wage-earning servant, one who was safe and free and saving money. But her memory was haunted by the thought of those who still lay at their master's mercy in the South. She could not enjoy her own liberty, and, risking its loss, she returned to rescue others.

Moses led the Hebrew slaves out of Egypt in one great army. Harriet Tubman led nineteen parties of African slaves to the free States. They had to travel through swamps and forests by night, and in deadly peril, with bloodhounds and owners in pursuit. The babies had to be drugged into silence. The children had to be hustled along. But never once did Harriet lose a "passenger" who travelled by the secret way she called her "Underground Railroad." Think of the responsibility! Think of the courage of the leader!

After the Fugitive Slaves Act, which ordered runaways to be sent back to their owners, was passed in 1850 Harriet Tubman had to take her people as far as Canada before they were safe.

It is small wonder that this Moses of her People was honoured by some of the greatest Americans of her time. Among her friends were Emerson, the famous writer, and John Brown, who was hanged for leading the revolt of the Negroes at Harper's Ferry, and William Lloyd Garrison, who was dragged through the streets of Boston by a rope because he preached against slavery, and narrowly escaped being lynched. It is not hard to imagine what would have been Harriet Tubman's fate if the guard at Wilmington had searched a certain wagon one day and seen who lay hidden in it!

When the American Civil War broke out Harriet Tubman joined the soldiers of the North as a cook and nurse. The courageous woman lived not only to see peace and the abolition of slavery throughout the United States, but to see the coloured citizen given a vote. It must have been the crowning day of her life. Never again could it be said, as it had been said not long ago, that the blacks "had no rights which the white man was bound to respect."

When her work was done Harriet Tubman founded a little House of Rest in Auburn. There she retired with a few old people of her own race. There, at the end of her suffering, perilous life, she tasted peace for the first time.

Before that hour she would have said, with Patrick Henry: "Is life so dear or peace so sweet as to be purchased at the price of chains and slavery? Forbid it, Almighty God! I know not what course others may take, but as for me, give me liberty, or give me death!"

L'ORGUEILLEUX ROI DE KAMERA

This is a French translation of the story told in English on page 534

Le roi nègre de Kamera, en Afrique, était un homme orgueilleux et sévère, son peuple le craignait et exécutait immédiatement ses moindres désirs. Mais un jour où il se vantait que tous les hommes étaient ses serviteurs, un sage et vieux nègre appelé Boukabar le lui reprocha en disant : " Tous les hommes sont les serviteurs les uns des autres."

" Alors je suis votre serviteur ? " dit le roi en colère. " Eh bien, prouvez-le. Obligez-moi à travailler pour vous avant le coucher du soleil et je vous donnerai cent vaches. N'y réussissez pas, je vous tuerai et vous montrerai ainsi que je suis votre maître."

" Très bien," dit Boukabar.

Étant très âgé, il était obligé de se servir d'une canne pour marcher, et, comme il la prenait pour sortir, un mendiant se présenta à la porte.

" Permettez-moi de donner quelque chose à manger à ce pauvre homme," dit-il.

Et, prenant des aliments des deux mains, il chancela près du roi, sa canne s'échappa de dessous son bras, s'enchevêtra dans sa robe, et le renversa presque. Alors il cria au roi : " Veuillez ramasser ma canne ou je vais tomber."

Le roi la ramassa sans réfléchir, et Boukabar rit joyeusement en s'exclamant : " Vous voyez bien que tout homme charitable est le serviteur de son prochain. Je sers le mendiant et vous me servez. Mais je ne veux pas des cent vaches. Donnez-les à ce pauvre homme."

Ainsi fit le roi, et il prit Boukabar comme premier conseiller pour apprendre à bien gouverner son peuple.

THE SPIRIT KING

Poland has had three conspicuous poets in comparatively modern times—Adam Mickiewicz, Julius Slowacki, and Sigismund Krasinski; and of these Slowacki is, perhaps, least known.

An idea of the character of Polish imaginative literature may be suggested by an outline of part of Slowacki's most important story-poem, The Spirit King, and such an outline has been prepared for us by Professor Lutoslawski, of Vilna.

Julius Slowacki wrote The Spirit King during the last years of his life. Its hero, privileged to know all about the life beyond the grave while yet living on the Earth, returns to an earthly life many times in different centuries to carry out the divine plan of creating a nation fit to prepare the Kingdom of God and the redemption of mankind.

According to the poet, this was the Polish nation, and its mission is to introduce Christian ways into political life and the relations between nations. The nation which is to save the world, the poet holds, can only be educated by a powerful spirit appearing in a succession of incarnations among the people of one race, and how this can be obtained Slowacki seeks to reveal in his poem.

Below is a summary of the first part of the poem.

Out of the world of shadows came The Spirit King, singing of past things.

" I shall tell of my sufferings and tortures of the heart, and my struggle against many spirits," he sang, " fulfilling the eternal decree which enjoins me to sing of the sacred wars between the spirits of the saints."

As his soul passed from his body Popiel, called on to choose a new destiny, had a vision of a lady of wonderful beauty and took a solemn oath to devote his life to following her, even if she should lead him to destruction. Then he awoke as a child in a ruined country, educated by a terrible woman who taught him vengeance and treason. The spirit world stood open to him, and he understood many mysteries.

There is a true wisdom, healing the diseases of the soul, which is not vain magic, and the child Popiel grew among such strange spiritual experiences, which the poet describes. As a young man he served King Lech.

" I had," he says, " terrible eyes and active hands, with a single aim inspired by the poison of vengeance. Whenever I followed this inspiration all obstacles were removed by an invisible hand.

" I wanted to become a chief, and immediately two chiefs who were above me died suddenly. In my association with evil spirits I could do harm by a mere effort of thought which killed my enemies. I looked upon the world as if it were a forest to be cut down."

Once, when returning from a battle, he noticed on a field a great number of dead eagles. He ordered his followers to fix the wings of these eagles above their helmets. When the army returned home with these new symbols the king was afraid, and the hero Popiel was put into prison, accused of treason.

But then his soul acted with a greater power than ever. He attracted by his will the king's daughter, and one night she opened his prison. She told him that

she had had a dream that eagles would take her crown. She related the dream to her father just when Popiel returned with the eagle's wings in his helmet. This was the reason why the king was afraid when he saw a winged troop.

Popiel went away eastward and found a German camp. He spoke to the soldiers and promised them the conquest of the world if they would follow him. They acclaimed him their king and he returned with them to the country of Lech, where the Princess Wanda ruled. He conquered the country, and expected her to become his slave. But the princess, preferring death, drowned herself in the Vistula. Popiel thereupon burned her body, and was elected king by the people of the country, which later was called Poland.

"Who could dare," he asks, "to put into human books such a thing for his glory and not to confess guilt! I resolved to frighten heaven, to strike the sky as if it were a shield of copper, to open the blue space by my crimes, and to shake the columns of moral laws on which rests the throne of the angel of life, until God himself should appear in the heavens. If God does not show his face over this violated fortress of life then he will send his comets or other signs of his power, and I shall learn that there is somebody who cares about our human doings. If not, and if I act like a mad king with this stupid rabble unpunished, then men are dust, and I am dust, lasting only a day in the shape of a sword."

Then Popiel began to defy God by his crimes to learn if there is a higher justice which punishes the guilty; and the people loved and worshipped the cruel king because of his power.

Finally he resolved to inflict a cruel death on Switvn, his most valued helper. Switvn escaped, and sent him as messenger the poet Zoryan, who remonstrated with the king—and was burned alive.

As Popiel feasted with his followers in Switvn's house a servant came to announce that a comet was to be seen. Popiel fixed his eyes on the comet, wishing its destruction. His will struggled in vain, and he felt that there was a power above him. Then he said to his followers:

"I have vanquished the world and shown that I am a spirit having power over Nature. The stars have sent this star to inquire if I am still alive as a criminal king and a man defying God. This is my death. Go! You are no longer the servants of my rage, but strong warriors. I have bought the strength of a nation by blood, and I have created a spirit despising death. I shall suffer my due, but you are not responsible for my crimes."

Popiel died, and he suffered whatever he deserved. Few people could understand the deeper meaning of his cruelty in search of God. But Popiel felt that through him the Polish nation was made insensible to blows, indifferent to death, and he ends with this song:

"Seas and mountains will change their boundaries, and many more comets will appear, when I fulfil with my spirit what I have attempted with the body. The spirit existed before matter, and thousands of years are as a moment to an immortal spirit to whom God reveals his mysteries."

In this poem are great beauties that cannot be translated into any foreign language. The reality of the spirit, the power of mind over matter, and the eternal life of each individual soul are presented with a power unsurpassed in the Polish tongue.

The first song of The Spirit King was published in Paris in 1847, and was then understood and appreciated by only a few readers. But the fame of Slowacki has been growing continuously since, and on the centenary of his birth, commemorated in 1909, several editions of his works were published, which brought him afresh before the world, and confirmed his position as one of the three greatest poets of Poland, a deep thinker, and a seer.

THE ENCHANTED THORN

ONE of the hawthorn trees at Newland's Corner, on the Surrey downs, is enchanted. Some maidens who danced round it one summer night were carried off by the fairies and never seen again. But some years ago two shepherd lads were sitting there when the hawthorns were white with blossom, and one said:

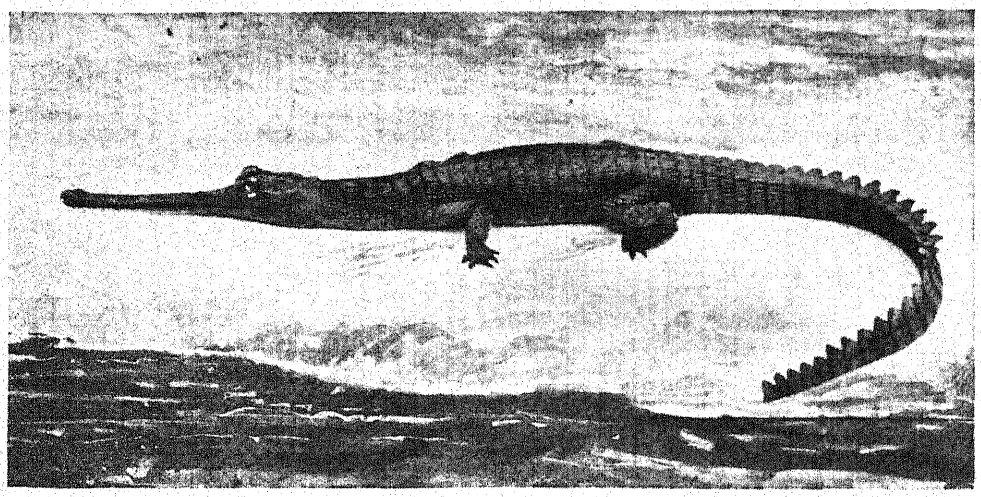
"We'll now see if this tree is really enchanted. I'll dance round it, and you sit and watch what happens."

And he began dancing round the tree backwards. When he stopped the earth opened, and a green table covered with dishes of meat and fish came up.

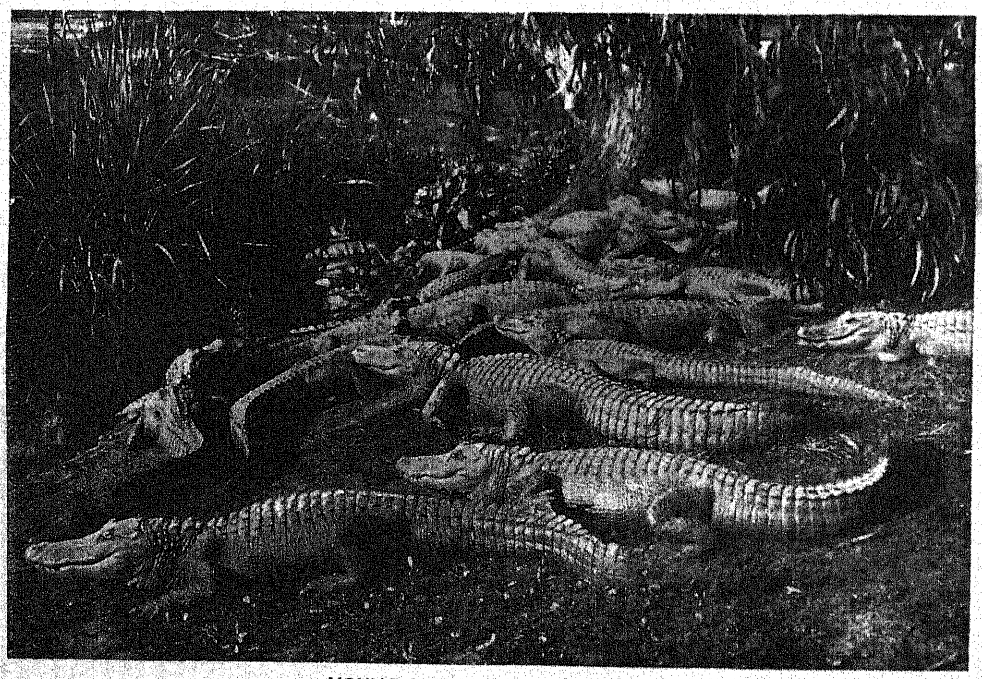
"Don't touch it; it is fairy food!" said the boy who had sat watching.

But his daring companion feasted to his heart's content, and the table then sank into the earth. He is now one of the richest farmers in England, for the food that he ate was lucky food.

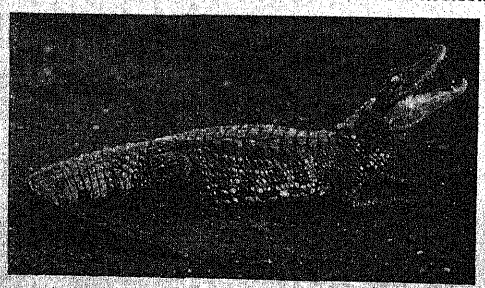
MEMBERS OF THE CROCODILE FAMILY



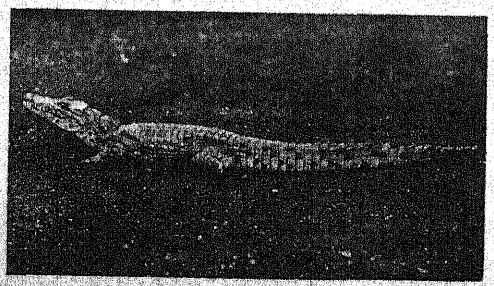
THE GHARIAL OF INDIA



YOUNG MISSISSIPPI ALLIGATORS

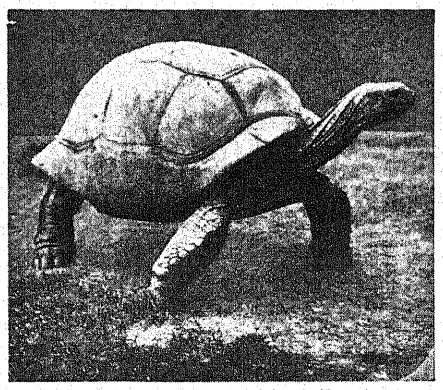


THE CAYMAN OF THE AMAZON

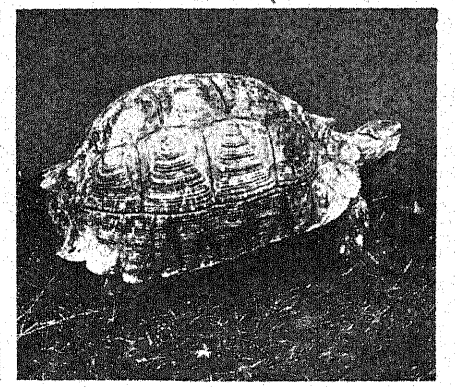


THE CROCODILE OF THE NILE

Nature's Wonderful Living Family in Earth and Air and Sea



The Aldabra, or Charles Island, Tortoise



The Leopard-Tortoise

THE MARVELLOUS REPTILE FAMILY

THE oldest of existing human dynasties is young compared with the immense ages through which the reptiles rose to power, had their day, and ceased to be.

The face of the Earth has been largely remodelled since reptiles left the waters to lay their eggs and rear their young ashore. Mountains frown where valleys smiled; seas roll where dry land was; old lakes are high and dry on the brows of hills, field and meadow bring forth crops where once ran river and ocean, and cities have risen in the parched throats of dead volcanoes, since the reptiles grew great, and the greatest of them perished, leaving us a scanty posterity.

Reptiles evolved from the amphibians, creatures which, born in the water, came ashore to live, though returning to lake and river to bring forth their eggs in turn. The reptiles learned to stay ashore.

Their origin was humble; their increase in species, in form, and above all in size, remains one of the marvels of created life.

They filled all the places now occupied by the natural orders existing today. They lived on land, they lived in rivers and lakes, they filled the sea. They crowded the air with pterodactyls, some with wings 25 feet from tip to tip.

In actual bulk the whale, which floats like a submarine in water, and therefore needs but little support, still outrivals them, but no land animal does. Nothing approaches the size of those old giants of the land and marsh.

The vegetable-eating dinosaurs reached a length of 60 feet in the brontosaurus, while the atlantosaurus was 80 feet long and 30 feet high. These dinosaurs are said to have weighed from 20 to 30 tons, as against the five tons of a fine modern elephant. For each ton of flesh and bone they possessed about an ounce of brains!

They consumed vegetation, and other dinosaurs arose to consume them in turn. flesh-eating dinosaurs must have been the most appalling creatures that ever stalked the Earth—40 feet long and 15 feet high.

Many species remained small, but in every direction there arose titans of their various orders. Our leathery turtle weighs well on towards a ton, but an animal of the kind in those days had a head five times the size of our biggest type. Egypt had a dreadful snake over 50 feet long; India had crocodiles 60 feet long, and Australia had lizards nearly as great.

From the same line which gave birth to these fearful animals came the ancestors of the birds and the ancestors of the mammals, leading on at last to Man himself. All the great reptiles are gone. How came these masters of creation to pass out of life?

One authority, Dr. Roy Moodie, believes that for threescore and more million years microbes were free-living, harmless organisms, and that in that time the great reptiles grew to power. But a time came when the microbes turned parasites, and brought diseases on the larger creatures.

Under the age-long attacks of these microscopic foes the giants slowly declined. From the examination of hosts of fossils Dr. Moodie believes that germ-borne disease attained its height when reptiles had reached their maximum of size. They began to decay decidedly when in the zenith of their powers.

THE SMALLER CREATURES THAT MARCHED ON AS THE GIANTS DECLINED

As they declined so a new and feeble order arose, humble little mammals. The decay of the ferocious giants favoured the new development of feeble, enterprising life, for, according to our authority, the emergence of the new type coincided with a temporary lull in disease.

In any case there was a time when one or two forms, slightly different from all other reptile forms, existed, and on them depended the fate of the line which was to furnish the world with horses, dogs, bears, cattle, apes, and Man himself.

Mammalian life must have been in the balance. A snap or two from the jaws of a few carnivorous dinosaurs, and there might have been no warm-blooded creatures in creation today, except those that clothe themselves in feathers and ride the wings of the wind.

We have but to reflect that snakes kill 20,000 people every year in India alone to realise how great a part reptiles must have played during past ages in the world, if only as a check to human increase and the multiplication of animal life.

THE FOUR ORDERS OF REPTILES IN THE WORLD TODAY

Of all the host of lordly forms to which the reptile world gave rise but four orders survive, or five if we accept the ruling that the ancient lizard-like tuatera constitutes an order by itself. We have, then, the crocodiles, the tortoises and turtles, the lizards, and the snakes.

These orders are broken up into many groups, so that we have over a score of crocodile species, upwards of 1600 species of lizards, and rather more snakes. But altogether the species do not much exceed 2500, a number which excels only the amphibians among backboned creatures and is insignificant compared with the mammals, birds, and fishes.

But for most people the total more than suffices; there is implanted in human nature a horror of reptiles, justified, to some extent, by the terrible record of the snakes and crocodiles.

Like all other reptiles, the crocodiles and alligators are cold-blooded. Their temperature rises and falls with that of the surrounding air, so fortunately they cannot exist in less than sub-tropical heat. But in favourable conditions they may be expected in every river or lake where man or other agency has not exterminated them.

In the old, old, far-off days we had both alligators and crocodiles in England. We find them deep down in the clay on which London is built, and in many other places. Had they persisted here over a wide area, it is safe to imagine that Britons would never have learned to swim in home waters. For crocodiles are the most terrible things that exist in fresh waters.

THE WEAK SPOT IN THE TERRIBLE ARMAMENT OF THE CROCODILE

That rough covering of theirs is a masterpiece of plate and mail. Embedded in the skin are bones, and on these are plates of horn. Yet the reptiles are extremely supple, though, owing to the formation of certain vertebrae in the neck, they are unable to turn the head, a fact to which many a man has owed his life.

The great body, which may be 30 feet long and more, and may go on growing for perhaps two centuries, is carried on lizard-like legs. That is to say, the body rides slung between them, not upright over them, as in the case of horses and cattle. The limbs are, of course, for walking on land and at the bottom of the water. The huge, powerful tail serves to drive the brute through the water. It serves also as a weapon.

A blow from that mighty tail, which can be swung with furious force and amazing speed to and fro, suffices to knock a man or a big deer off his feet, in readiness for a hideous grapple. But it is in the water that most havoc is wrought by the reptile. Here it is assisted by as strange a contrivance as is to be found in Nature.

The nostrils are mounted high at the tip of the snout. They open, not into the mouth, but actually into the windpipe. A corresponding modification of the fleshy

parts of the mouth shuts off the throat from the breathing apparatus, and valves close or open the external nostrils and ears.

The result is efficiency perfected. A victim is seized and pulled under the water and held there till it drowns. But all the time it struggles its captor has its mouth wide open and is breathing calmly. The nostrils open above the water; the distended mouth permits no fluid to enter the throat; the crocodile murders in safety and comfort.

THE RIVER WHERE ALLIGATORS SWARM LIKE TADPOLES IN A DITCH

When life is extinct in the prey, then the reptile has to dismember it. Its teeth are adapted to grasping and rending, not to mastication, not to bite cleanly like those of lion or wolf. The brute seizes a mouthful of flesh, and gives one or two great convulsive wrenches from side to side, and so effects a parting.

The force that is in these movements may be inferred from a scene described by the naturalist, Henry Walter Bates, who explored the Amazon in the middle of last century. He found the upper waters of the Amazon swarming with alligators as an English ditch swarms in summertime with tadpoles. To this centre of danger at Caicara came a number of incautious native boatmen, one of whom, in senseless bravado, plunged alone into the water.

As he did so a pair of cavernous jaws opened, grasped his waist, and disappeared with him in the stream. The man's comrades set out in search in their boat. They followed a trail of blood floating on the water, and suddenly the alligator rose to the surface. It had made its kill and its worry; in its mouth was a leg of the man it had captured.

THE GREAT LIST OF VICTIMS OF THE CROCODILE IN AFRICA

Generally speaking, no waking man need fear one of these reptiles on land, though a sleeper or a sick man would suffer the worst. But in the water the voracious fury of the crocodile is the very stuff of which nightmares are made.

Though no figures can be gathered, competent opinion holds that more deaths are caused in Africa by crocodiles than by any other wild beast. In 1923 Mr. C. F. M. Swynnerton, Game Warden of the Tanganyika Territory, exhibited before a London gathering of scientists the contents of the stomach of a crocodile which he had killed. There were many quills of a porcupine not completely digested; 11 heavy brass arm rings, such as natives wear; three coiled wire armlets; a glass bead necklace; 14 arm and leg bones; three spinal columns; 18 stones of various sizes, and a length of fibre cord which had bound some bundle borne on the head of a native who had become a meal for the crocodile.

The crocodile family is divided into three groups: the caymans of South America and the West Indies, the alligators of North America and of certain Chinese rivers, and the crocodiles which are common to Africa, Asia, and Australia. It must have been the cayman that the first white men in the New World saw. They called it *el lagarto*, which is the Spanish name for a lizard, and the name became changed in time to alligator.

Caymans and alligators are more closely related to each other than to crocodiles, though the Chinese alligator is nearer in design to the cayman of South America than is the alligator of North America. Both kinds are broader and shorter in the head than the crocodiles, and specialisation seems to have gone farther in the cayman than in any other species, for here the outward opening of the nostrils has become one, not two; the bony plates are united into an undivided armour, extending in one species to form a sheath for the legs.

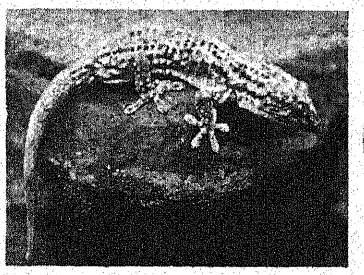
THE MOTHER CROCODILE THAT WATCHES OVER HER EGGS IN THE SAND

There is little difference in the habits of these reptiles. All are flesh-eaters, though, from force of circumstances, many have to live largely on fish, and all have a value as devourers of carrion, which would poison river, lake, and stream. All migrate when home waters dry up, but where streams merely run low the reptiles bury themselves in the mud and wait for damper days to return.

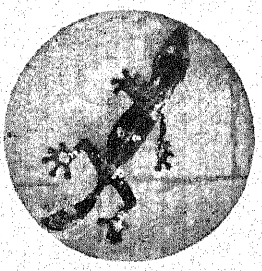
All are egg-layers. The numbers of eggs vary from 20 to as many as 100. Some crocodiles dig deep pits in the sand, lay their eggs there, cover over the hole, and keep watch, even brooding on the spot till the young are near hatching. Low barks from within the eggs tell of dawning life, when the mother excavates the sand which covers her brood.

The babies escape from the goose-sized, hard-shelled egg by means of a cutting implement on the end of the snout, resembling the tooth egg of a baby bird. Then the mother leads them down to the

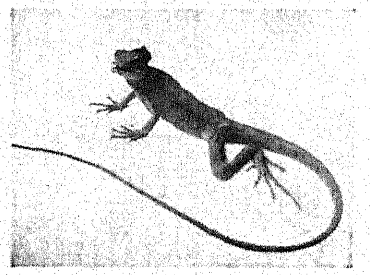
IMMENSE VARIETY OF THE LIZARD FAMILY



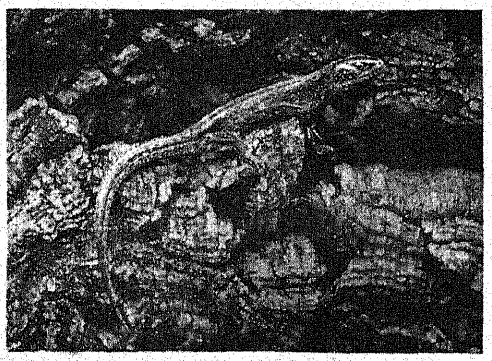
THE WALL GECKO



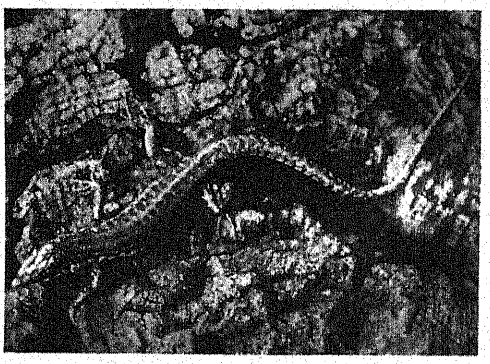
A GECKO CLIMBING



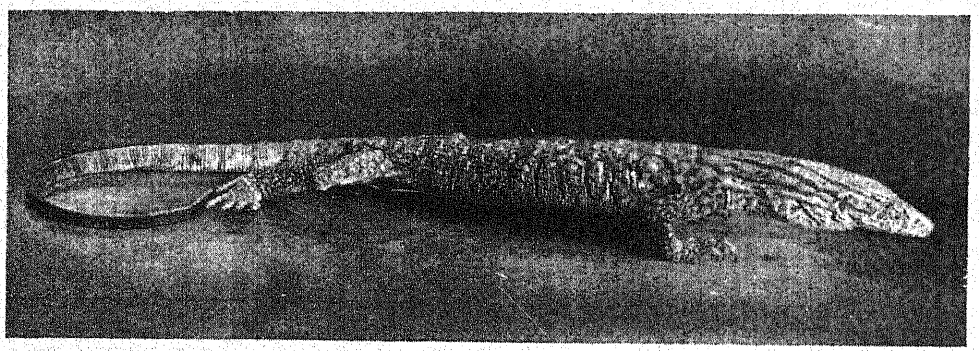
THE BASILISK



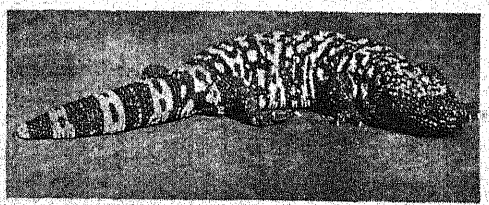
THE SAND LIZARD



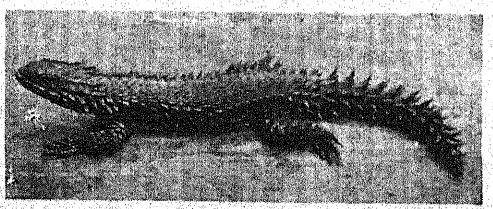
THE WALL LIZARD



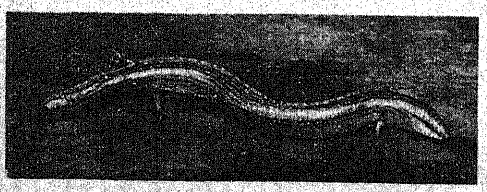
THE DESERT MONITOR



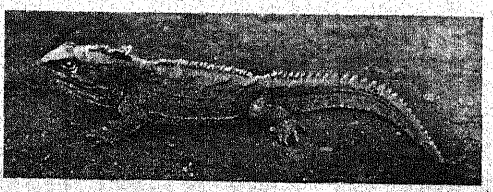
THE ARIZONA POISONOUS LIZARD



THE CAPE GIRDLE-TAILED LIZARD

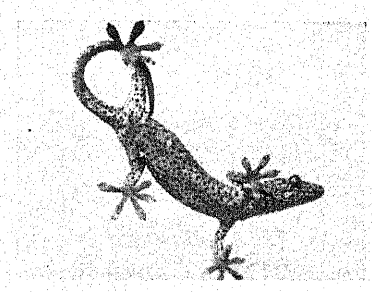


THE SEPS, OR ANDOVIN'S SKINK

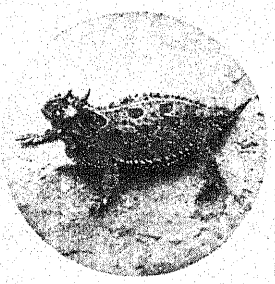


THE TUATERA LIZARD

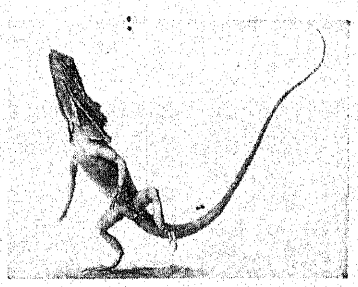
A QUEER AND ANCIENT TRIBE



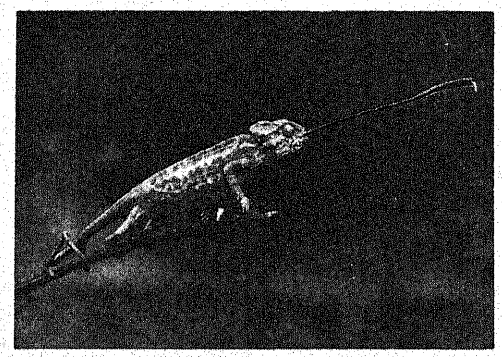
THE VERTICILLATED GECKO



THE HORNED IGUANA

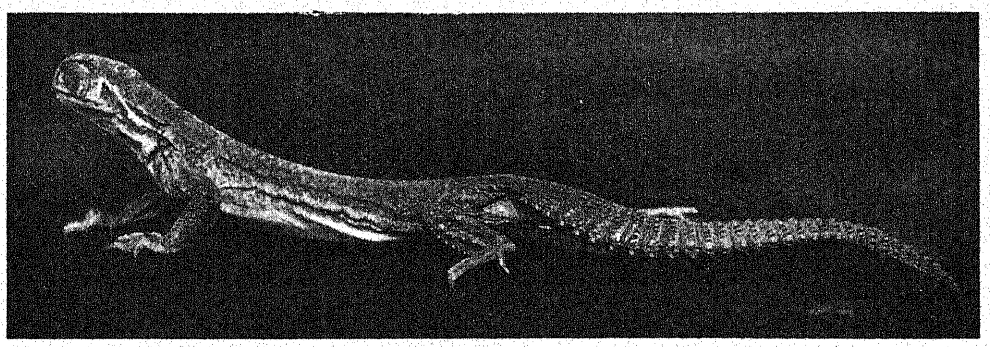


THE FRILLED LIZARD

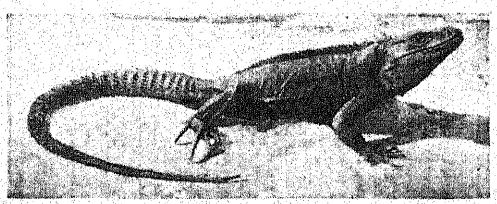


THE CHAMELEON

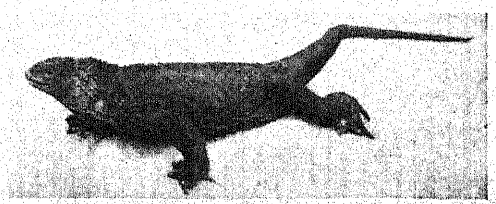
THE TEGUEXIN, OR TEJU LIZARD



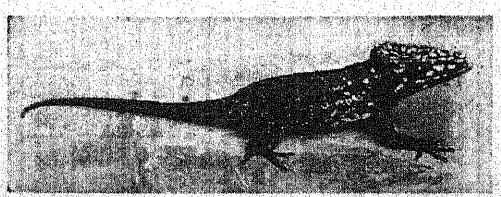
HARDWICKE'S SPINY-TAILED LIZARD



THE SPINY-TAILED IGUANA



THE GALAPAGAN LAND IGUANA



THE CUBAN ANOLIS

THE COMMON SKINK

water. One of the caymans lays her eggs in heaps of decaying vegetation and leaves the heat of the mass to effect incubation, like the brush turkeys.

The crocodiles proper have undergone specialisation into groups remarkable for certain peculiarities into which it is impossible now to enter. There is one, for example, which has so short a head as to be called the short-nosed crocodile; and there is the opposite extreme in the long-nosed crocodile of West Africa, whose slender snout enables it to catch fish, frogs, and birds with swift dexterity. This brute is 18 feet long, and sometimes longer.

Two crocodiles which interest us are the Nile and the estuarine crocodiles. The first is a monster which the Egyptians worshipped. They tamed it, kept it in tanks at the temples, especially at Thebes, and when death overtook it they preserved it, in mummy form, as a holy relic. Similar superstition renders crocodiles objects of veneration in India today.

THE GREAT TRAVELLER OF THE CROCODILE TRIBE

The taming consists, of course, in feeding the creatures so well that they have no need to forage for themselves at the cost of human life. But, on the other hand, there are known places where crocodiles have dwelt for generations, taking constant toll of human life, yet spared, from religious fears, by the natives.

The Nile crocodile is not quite the giant of the order, for the estuarine crocodile carries off the palm for size. But here is a huge savage horror as long as five men laid in a line, with still a margin to spare, for estuarine crocodiles ranging up beyond 33 feet have been killed, and there is no reason to suppose that the mightiest have yet been measured. Nor have the largest known reached the limit of possibilities, for there is no reason why these lusty monsters should not go on growing as long as they have health and vigour enough to pursue man, animal, fish, and bird to feed the engines of their bodies.

The estuarine crocodile is the great traveller of the tribe. It is feared and detested in Indian waters; it is a scourge of the Ceylon coast; it is loathed and fought in Australian seas. With such size and strength this crocodile is capable of terrible feats, but it was one of the Nile breed which mastered the rhinoceros. When we think of these modern terrors, which represent the dinosaurs in our age we may imagine what were the gory deeds those fearful tyrants wrought in their day.

It was none of the species yet named which formerly gave us the largest of all crocodiles proper. That was the gharial, India's famous river crocodile. Its long and relatively slender muzzle makes it specially efficient as a fish-catcher but, though men treasure it in the inland reaches, it does kill human beings. It was a gharial that once attained a length of 60 feet.

A REPTILE THAT HAS NOT CHANGED FOR MILLIONS OF YEARS

The gharial is a very ancient animal; but a reptile still more ancient is the tuatera—not a crocodile, but, in the eyes of most of us, a lizard. In reality this reptile of New Zealand is, though lizard-like in outline, as widely separated from modern lizards as lizards are from snakes. In its youth and prime it has teeth in both jaws as well as on the palate, but these wear away and the creature is toothless, so is called a beaked lizard.

Lizard it is not, but is distinct to itself. It has remained unchanged in a quiet backwater of life for millions of years, the most venerable reptile now existing. Its body is made up of milestones past which the tide of life has swept for ages.

With the technical details of its anatomy we cannot deal beyond recalling that it was in the tuatera that was first found the eye looking out of the top of the head. There may even have been a pair of such eyes. Neither is functional now, but the remnants are there to tell a wonderful story of what once existed at the summit of this strange creature's skull.

THE ANCESTRAL FORM FROM WHICH MANY REPTILES HAVE SPRUNG

Isolated as he now is, the tuatera is probably the ancestral form from which many hundreds of other existing reptiles have sprung. The vast company of the lizards must have branched off from the tuatera form. And what an infinite variety of form, colour, habit, and size is the result! Some are creatures of the desert sands and rocks, some dwell in trees, where they use their tails as an extra limb, as American monkeys do. Some pass the greater part of their lives in water, some climb vertical rocks, and run upside down across ceilings or the under side of branches of trees, like flies. And some, having no legs, wriggle like snakes.

A book is needed to do justice to the geckos alone in Africa, India, and Australasia. Three hundred species are known, and three or four inhabit human homes, where they are famous hunters of insects. All are admirable climbers, though the structure of the feet differs considerably. In the best known, sucker pads beneath the feet give an unfailing grip, no matter what position the gecko assumes, up the window panes, across the ceiling, wherever fly or spider, beetle or cricket is to be met and munched.

THE HARMLESS GECKO THAT IS FEARED BY THE PEOPLE OF THE EAST

In the East the gecko is as feared by natives as the shrew in our unenlightened English countryside. It is said to poison food wherever its foot touches, and is called the father of leprosy. The truth is that it is perfectly harmless, whether it be one of the species that keeps to the cellar, one which keeps to the roof, or a third which dwells in chinks and crannies of the walls of the house. It is amusing, valuable, becomes a capital pet and is to be objected to only when its numbers are too many and its night-cries too lusty.

One of the many remarkable forms is the fringed gecko. This species has a fringe which is simply an expansion of the skin along both sides of its body. What end such a development serves we cannot know, but we can fancy it was in some such way that there arose the wonderful parachute of the flying lizards.

Here the ribs themselves, six or seven on each side, are prolonged to form supports for the membrane. The whole apparatus works like a fan, folding up when the reptile is at rest, expanding when its little owner flits by its aid from tree to tree.

REPTILES WHICH HAVE TRIED TO REGAIN THE MASTERY OF THE AIR

The flying lizards number upward of a score of species, and alone of reptiles seem to have tried to regain the mastery of the air which the old pterodactyls gained and lost. But in the group to which they belong, the agama lizards, are other freakish developments of frills.

Nothing is more extraordinary than that of the frilled lizard itself. This is a formidable-looking little ruffian, between two and three feet long, with a frill springing from the throat and neck, opening and closing at will, and expanded when the creature is angered to enhance the frightening effect of an opened mouth, which in reality is quite innocent. We have caterpillars which assume threatening attitudes with far direr consequences than any of which the frilled lizard is capable.

Even more alarming in suggestion, though guiltless of offence, is Australia's moloch or spiny lizard. It is only eight inches long, but Nature has packed into it more ingeniously terrible armament of spines and prickles than into anything that lives outside the cactus family. We look on the moloch and realise what some of the giants in old-time armour must have been, and have a further help to reflection in the fantastic protection of the spiny-tails, lizards of the Old World, whose tails, thickly beset with horny prickles, could never have suffered the indignity borne by the three blind mice of which the old rhyme sings.

Fancy in old times played with horror round the basilisks, an entirely harmless group of lizards belonging to the great iguana family. The basilisk was supposed to strike dead any who beheld it, man or animal, even snakes; and its fiery breath was so potent that it scorched the vegetation of its habitat. The fact is that the helmeted basilisk, with its newt-like frill and its horny helmet, like the weird-looking banded basilisk, is fearful only in appearance; in habit and nature both are the most harmless of lizards.

THE TIRED LIZARD WHICH STOPS WALKING TO TAKE A NAP

So far we have been thinking of land lizards, but now we turn our eyes seaward and find the sea lizard of the Galapagos Islands, cutting a dash in the waves, and banqueting on seaweed, a giant of lizards, four and a half feet and more long. Keeping to the soil of the same islands is another lizard of note, the land iguana, which, weighing over a stone, is yet a foot less than its sea cousin. This is a strangely lazy beast, which will stay and nap in the midst of a walk, and dig its burrow with the limbs on one side of the body till tired, then rest and work with the other pair.

Other queer iguanas are the rhinoceros iguana, whose two small horns on the snout suggest the title, and the ring-tailed iguana of the West Indies, remarkable for a big dilatable throat pouch, a ridge of prickles down the back, and a tail ringed with formidable little spines. It is curious that so much care has been lavished on tail armour in lizards, for this member can be cast off by most of them.

Lizards must be dainty food to some animals, however, or there would not be this elaborate system of defences against hungry jaws. The horned lizard, to take another example, is armoured with defences not unlike those of the moloch, yet it is only the size of a well-developed toad. The scheme of the girdle-tailed lizards is less fantastic in pattern, but the mail of horny prickles is ornate enough to safeguard the most precious thing in Nature.

Then at a step we reach lizards which have no more armament than little snakes. These are the so-called slow-worm tribe, of which in England we have the typical slow-worm, or blind-worm; while the Old World and the New generally have a relative in the so-called grass-snake. The use of the word worm in this connection is a harking back to old times when snakes were called worms. Even the supposed dragons sometimes went by this name.

THE LITTLE LIZARD THAT HAS LOST ALL ITS LIMBS

Our slow-worm, then, is simply a much modified lizard, which has lost its limbs as completely as some birds have lost flight. Like the grass-snake it is harmless, and is, of course, without poison. Unlike the snakes it cannot withdraw its tongue into a sheath, and unlike them it has the lower jaw in one solid piece of bone instead of in two halves united by a ligament.

There is, however, one type of lizard which is poisonous. That is the holoderm, a Central American group. There are two species of them, and both somewhat resemble our slow-worm in internal structure, though they retain all four limbs, and are brightly arrayed in colours which seem to advertise their noxiousness. Their poison is injected through hollowed teeth when they bite, by the same method as that of a snake. The venom of these lizards is potent enough to kill little animals, such as guinea-pigs, and to cause serious inconvenience to human beings.

It is fortunate that poison has never been added to the great group of lizards called monitors, for here we have creatures measuring as much as seven feet long, and very powerfully built. They have a snake-like tongue, which is received, serpent-wise, into a sheath of bone in the mouth. Some 30 species are distributed over Southern Asia, Africa, and the Australian regions. The water monitor, the giant of the tribe, common to India and Australia, is equally at home on land, in the trees, and in the water, be it river or sea. Eggs of birds and crocodiles form a large part of monitor diet. They are friends to man.

America has no monitors, but has developed a family closely resembling them in the teju lizards. Of these the teguexins, handsome tropical lizards, a yard long, are the most notable. They never take to water, and are harmless unless attacked.

A LIZARD THAT BURROWS IN THE EARTH LIKE A WORM

We must note the amphisbaenas, too, extraordinary degraded lizards, which have lost the hind legs, have become wormlike in outline and in habit, burrowing in the earth and moving backward and forward with equal facility. There are many other lizards with which naturalists are acquainted as friends and pets, notably the green lizard, a European which most of us have kept from time to time; the viviparous lizard, which carries its eggs in its body till they hatch and produce the young alive; the wall-lizards of Southern Europe and elsewhere, which are as perfectly at home in banks and walls where the sun shines as crickets on the hearth. There is the sand-lizard too, a creature of sandbank, dry heath, and dusty hedgerow, common to England as to all the warmer parts of Europe.

Then there is the great array of skinks, a marvellously varied assembly, some with short, blunt tails, some with tails like heloderms, some shaped like four-legged snakes, or gigantic caterpillars with all but the first and last pair of feet and legs removed, with a great stretch of unsupported body intervening.

THE AMAZING RAPIDITY WITH WHICH THE CHAMELEON TRAPS ITS PREY

But even they have no more grotesque form than the members of the next order, the chameleons. Here are creatures incredibly slow in all but the action of the long sticky tongue, which shoots forth to a distance of eight inches and more to catch an insect, in and out and back again, with fly attached, in the forty-fifth part of a second.

That is all the speed a chameleon possesses. With its extraordinary feet it clings to a branch and anchors itself further by its grasping tail-tip, and there it stands with eyes swivelling independently, changing colour to suit its surroundings. This feat is not peculiar to chameleons; lizards, frogs, and fish have

the same gift, but not in the same measure as the chameleon, which is a master of swift camouflage.

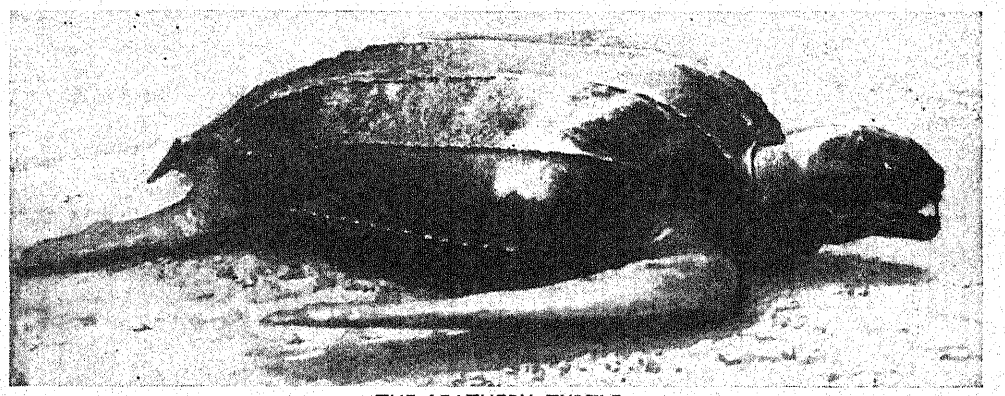
We should not believe such things as molochs, amphisbaenas, chameleons, and some of the skinks really possible, if we had not the actual reptiles to prove their astonishing story. How much more difficult, then, would it be to accept descriptions of unseen turtles and tortoises, had not we been familiar with examples of both from childhood! Here we have creatures locked up in fortresses of bone of widely differing designs. The turtles take the sea and some of the tortoises keep the land, while others of their family are at home in pond and lake.

The order is very ancient, and we have never yet been able to dig deep enough into Time to see the form from which the order arose. All are egg-layers, many are flesh-eaters, but the majority are vegetarians, especially among the tortoises. Beneath the bony covering exist ribs, joined, generally, to the carapace; and the rigidity of the covering renders it necessary for the limbs and neck to be used to aid breathing. Movements of these force the air from the throat down the windpipe, the nostrils closing valves to prevent its escape by any other passage than to the primitive spongy lungs. Naturalists have tabulated some forty species of land-tortoises, widely distributed and including perhaps the longest-lived of all animals, centuries old, some of them. One of the best known of American varieties is the Brazilian gopher tortoise, two feet long, eater of herbage and windfall fruits, and, in spite of its great shell, itself a meal for puma and jaguar, which uprear the shell and tear the flesh out with their claws.

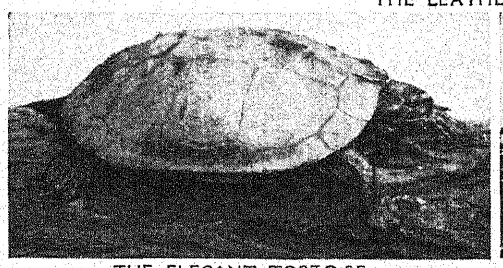
Leopard-tortoises, brown, radiated, and starred tortoises, are in the same group, and described by their patterns, handsome in their way and big, but insignificant in comparison with the giant tortoises of islands in the Indian and South Pacific Oceans. These examples descend from ancestors who had these island paradises to themselves from far distant ages.

There are still giants in this assembly, tortoises 55 inches long and weighing 550 pounds, creatures on whose back a man may ride. All of them are vegetable feeders, the product of peace and plenty in fair lands and a generous climate. When we remember that in 18 months 30,000 of them were taken from Madagascar alone we have an idea how they teemed in their unvisited days.

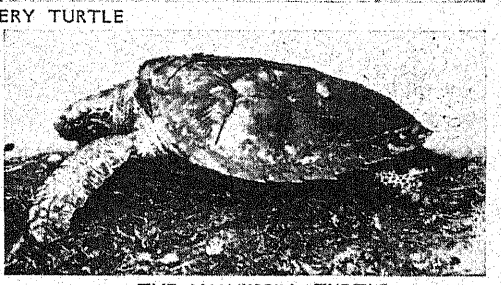
Europe has its tortoises, and some of them are familiar in our summer gardens where they eat lettuce, grass, and clover.



THE LEATHERY TURTLE



THE ELEGANT TORTOISE



THE HAWKSBILL TURTLE

but never beetles, which dealers guarantee them to kill. We have, however, nothing so strange as the hinged tortoises of Africa and the box-tortoises of America. In these the attacks of animals, like those suffered by the Brazilian tortoise, have led to the provision of movable sections of the shell which, when the reptile draws in head and legs, cover the openings and present a sealed fort of bone and horn to an aggressor.

The safety which retreat to water confers has made the pond tortoises less dependent than these on such defences, and it is notable that the upper and lower halves of the shell are united only by a strip of cartilage. Yet the nearest allies of the pond-tortoises, the terrapins, have their carapaces and breast-shields united by bone, like all the remainder.

Terrapin is only another name for tortoise, and is given to a great number of species which frequent estuaries and the higher reaches of rivers. They are well represented in America as well as in Asia and warmer Europe, and are famous in the New World as a form of food for the table, and for many wonderful devices and patternings of shell. A European species, the Iberian terrapin, is noteworthy as a sort of rival to the hermit crab with its associated sea-anemone. The terrapin in the water becomes covered with a dense growth of alga and so steals on its prey, disguised as a rotting log. And very fierce and deadly it is when it arrives!

How the Turtle comes Ashore to lay its Eggs in the Sand

But the tortoises do not equal the size of the turtles, which, keeping entirely to the sea for a living, have grown to greatness in the midst of unfailing plenty. In this group, as in the sea-mammals, the fore limbs have been converted into paddles, and all are great swimmers. They leave the water only when the time comes for them to lay their eggs.

Then, though they are but cold-blooded reptiles, they exhibit caution and cunning. The sight of a man will keep them off shore, and the females will retain their eggs for long rather than face unnatural risk. Landing in the still of night, they march inland to some point high enough to escape flood and high tide, dig deep pits in the sand and there lay their eggs. Then they return to the sea, but not by the way they came in, as if to lead astray any who should follow them to their nurseries. The young turtles, when hatched from the eggs, bite their way out of the sand and may be seen with their mouths full of grit as they march to the water. Instinct is strong and overmastering with them. No matter what barrier is interposed, no matter how many times they may be diverted or even turned round and forced in an opposite direction, they make for the sea as a magnetic needle points to the north.

It is the green turtle which is caught for my Lord Mayor's soup, a reptile weighing as much as the giant tortoises; but the leathery turtle, so named from the fact that its bony exterior is covered with a leathery integument, attains a length of six feet and nearly a ton in weight.

The Turtle that lives to a great Age and gives us Tortoiseshell

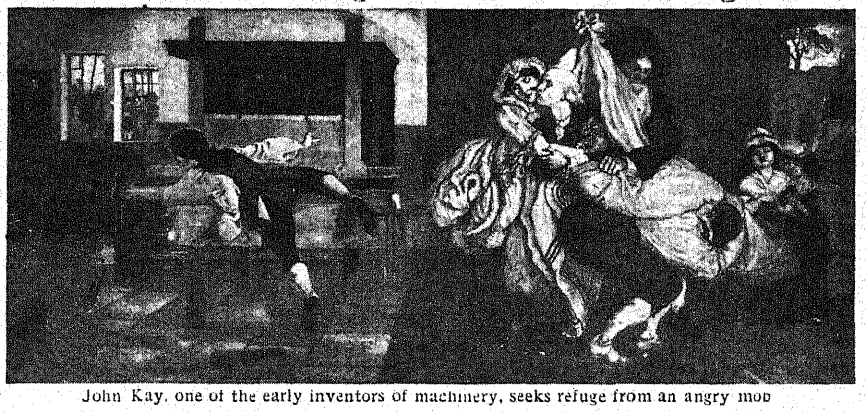
The hawksbill turtle, a smaller species, ranging up to some three and a half feet, is the one which yields the tortoiseshell of commerce. Formerly the manner of getting this commodity was brutal in the extreme, the reptiles being roasted slowly till its plates split off; but that, fortunately, has all been stopped, and the capture of the hawksbill is now as humane as it can be, and its death is not unmerciful.

As with all lowly creatures, turtles are very tenacious of life. They live to great ages, they endure hardship amazingly. One has been known to live and bite a man's fingers off a day and a night after it had received an apparently mortal wound. Most of them catch fish and cuttles, and some, like the loggerheads, a mighty turtle in size, crack the great shells of conches as easily as a man cracks a nut.

There our hurried survey must end, in the spirit in which it began. We had bulk, ferocity, and inefficiency. We close with bulk, fierce strength, and intelligence of the meanest order, controlled in wonderful ways by instinct as mechanical as that of a processionary caterpillar which urges a grub to march itself in circles to death.

The Blind Road along which the Reptiles are Marching

All the reptiles have more or less adopted armour in the manner of our old knights. It is a mute confession of failure to succeed by brain, enterprise, and courage in the world's highways. The reptiles, in spite of all their numbers, seem marching slowly to a road which leads them nowhere. Some cannot march at all, but only slither, and of these we read in the next chapter, which tells the strange tale of the serpents.



John Kay, one of the early inventors of machinery, seeks refuge from an angry mob

THE AGE OF THE MACHINE

A FEW years before the gorgeous but worm-eaten structure of French monarchy crumbled suddenly into dust, a Scotsman living quietly in Glasgow University came by an idea which was destined to revolutionise human life far more effectually than any act of the maddened Terrorists of France.

He was James Watt, of whom we read elsewhere. He occupied a shop in the college as mathematical instrument maker to the University.

Few could have guessed that of all men living in the world James Watt was destined to render by far and away the greatest service to mankind, but this delicate young man produced an efficient steam-engine, and carried his work to success, so that while the Continent of Europe shuddered under the storm of revolution the British Islands rang with the hammer-strokes of engineers forging a new age for humanity.

Already England was striding ahead of other nations in commercial energy. Hargreaves had invented the spinning-jenny, and while James Watt was alive Richard Arkwright produced a cotton-spinning machine which could be worked by steam. The effect of these inventions was prodigious. In 1773 there were 2371 houses in Manchester, and it was called "the largest village in England;" 13,786 people lived there. Five years later the population of Manchester was 50,000; three years later still it was 70,000.

These things constitute a revolution. We look back to the end of the eighteenth century and speak of the Industrial Revolution, meaning that the making of goods was utterly changed by the invention of machinery and the use of steam. We mean, too, that life itself was revolutionised by these great changes.

Instead of each householder making the things he required, or buying them from a labourer with a loom in his cottage, or from a manufacturer who employed many people to spin and weave in their homes, there now arrived the Factory, the place to which people flocked to earn wages, the place round which houses were run up in narrow streets for the use of the workers.

Gone was the peace of the village, gone the independence of the home-worker. The town darkened the sky with its smoke, and thousands of people from the country left their thatched cottages and their little gardens to provide the slum with a population and the factory with *hands*—for workers, human beings, were now *hands*.

Terrible as were the sufferings involved in this revolution, foolish as were many of the blunders committed by those who

directed the change, and cruel as were many of the methods of the factory-owners, this mighty change nevertheless contributed to the happiness and progress of mankind. We must always remember, when we are asked to weep over the sufferings of the factory-hands in the early years of the Industrial Revolution, that long afterwards life was counted so cheap in England that men and women were hanged for petty thefts, the press-gang did what it liked in the streets of cities, and women chained together like wild beasts were flung into ships to be transported. All the mercy of our social life is the work of the nineteenth century, and until the harvest was reaped from John Wesley's sowing life in England was rough, hard, fierce, and cruel, as it had always been.

What we must remember for the present is that, while Europe seemed to go up in the flames of the French Revolution, our Little Treasure Island was suddenly turned from a land of agriculture into the workshop of the world.

THE GREAT CHANGE THAT CAME OVER THE LIFE OF ENGLAND

Wealth increased, population increased, and mental activity became a force that people felt at every turn. If there were hardships and cruelty in England there was also heartiness and cheerfulness. If there were brutality and coarseness there was also tenderness and sweetness. If the sky blackened with the smoke of factory chimneys, the fields were still ringing with hymns sung by the Methodists.

One thing also we must remember. Until the end of the eighteenth century life had changed very little since the days of the Romans. The roads of England were worse than the roads the Romans left behind them, and people still travelled along those roads on horseback. Highwaymen were often more dangerous than they had been in the days of Alfred. Goods still came from overseas in sailing ships. Water was still chiefly drawn from wells. There was no light save from candles and oil lamps. Drainage was scarcely understood. The bath was almost unknown in houses. Only in one striking way was life really changed from the life of ancient times: there were books for those who could read.

It has been pointed out that "tens of thousands of years divided man's first use of fire from his first application of it to iron;" and also that "the art of writing preceded the printing-press by tens of centuries." In his admirable British History in the Nineteenth Century Mr. G. M. Trevelyan says:

> In those days each great invention was granted a lease of many ages in which to foster its own characteristic civilisation before it was submerged by the next; but in our day inventions, each implying a revolution in the habits of man, follow each other thick as the falling leaves. Modern History, beginning from the England of 1780, is a series of dissolving views. In each generation a new economic life half obliterates a predecessor little older than itself.

THE NEW CIVILISATION THAT AROSE IN THE EIGHTEENTH CENTURY

In the reign of George the Third, Mr. Trevelyan explains, people went about the world on the back of a horse, and goods travelled by pack-horse. In came the coach, the wagon, and the barge, because Macadam had invented a hard-metalled road, and others had flanked the road by a canal. A new civilisation arose, a civilisation of the coach. But, instead of lasting for hundreds of years, the coach had hardly got going before Stephenson produced a locomotive. And hardly had men stopped wondering at the speed of the Flying Dutchman than petrol gave us an entirely new civilisation—the civilisation of the automobile and the aeroplane.

Remember, then, that the French Revolution marks the end of the slow-going and slow-thinking old world, and that the Industrial Revolution marks the beginning of a new civilisation.

Few centuries present us with a greater drama than this eighteenth century, which, as in some enchanting fairy tale, suddenly took wing and flew away with the ancient mind of the human race. We see something on the Earth which has never been there before—a new mind in man, the Great Adventurer of existence.

MAN SETS OUT TO MASTER THE FORCES OF NATURE

Never more will it be possible for him to see life as it was seen in times past. Never more will he know the feelings towards life which were every man's feelings in the ancient world. He has found a new way of asserting his power; he has discovered that to the empire of his mind there are no limits; he sets out from the closing years of the eighteenth century to conquer the world and master the forces of Nature. And for him the days do not drag

and the years seem like a tedious tale: time flies, and he is raced quickly to the end of his work.

Before we proceed to describe the last phase of the great duel between France and England, revolutionary France and fast-changing England, let us try to understand what was in the minds of those two great nations in the eighteenth century.

Rousseau, as we have seen, had planted in the French mind a new idea. That idea of his struck across other ideas sown in the French mind, not by emotionalists and sentimentalists, but by some of the most vivid and acute intelligences in the world. Voltaire, for example, had sown the idea of scepticism. People began to say that religion was a superstition.

These people did not hate goodness; they hated the Church because they thought it was not good enough. They said that it took people's minds away from the business of making human life worth living, and frightened their hard-earned money out of their pockets by picturing the awful fate of sinners in another world. They invented a new religion, and called it the Religion of Humanity. Henceforth men were to concern themselves only with the tremendous work of rendering life beautiful and happy for all mankind.

This teaching commended itself to many philosophers, but to a multitude of violent-minded people, whose lives had no foundation in the moral laws, it was a charter of anarchy, and thus it came about that the Religion of Humanity became a drunken orgy of pessimism, and the French Revolution, so full of promise for mankind, culminated in the military nightmare of Napoleon's conquests.

In England other influences were at work. John Wesley had awakened the conscience of the nation. Men and women were striving to become better fathers and mothers. With a Bible in their own language, homely hymns they could sing at work, and preachers who came to them in their own villages, the multitudes of England listened to the voice of conscience.

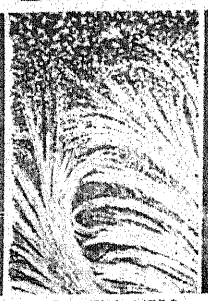
And there was, too, the influence of the inventor. Practical men began to see that the way to improve life was not to be sentimental over words like Equality and Fraternity, but to forge weapons of power, to create instruments of dominion. English commonsense allied itself with the moral enthusiasm of the Methodists. In France there was Voltaire; in England there was Dr. Johnson. In France there was Rousseau; in England there was Wesley. In France there were Mirabeau, Danton, Robespierre, and Marat; in England there were Pitt and Burke. We, too, had our sceptics and our mocking philosophers, but they counted little in an age which listened to Oliver Goldsmith and John Howard, which was still resplendent with the glory of Sir Isaac Newton, which saw in James Watt and Richard Arkwright the pioneers of a new world more wonderful than the lost colonies of America.

THE OPENING OF BRIDGEWATER CANAL IN 1761—FROM THE PAINTING BY FORD MADOX BROWN IN MANCHESTER TOWN HALL

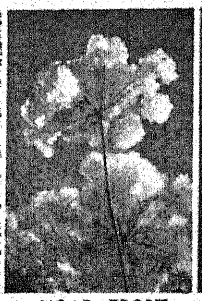
Very different were the outlooks of the two great nations as the eighteenth century closed, and we shall best understand how the long duel ended as it did if we keep the difference in mind.

LITTLE DROPS OF WATER

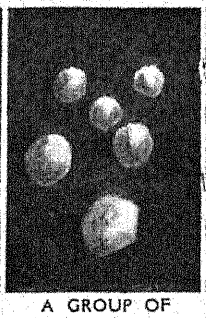
A DEWDROP ON A LEAF



FROST FLOWERS ON A WINDOW

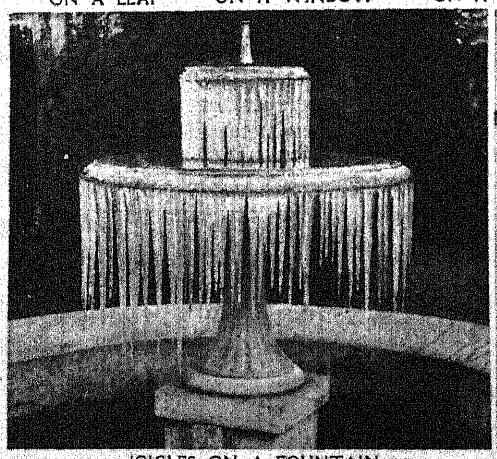


HOAR FROST ON A PLANT



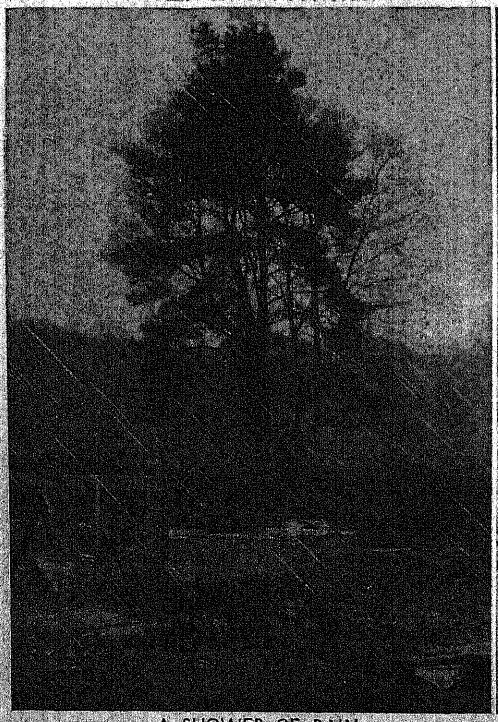
A GROUP OF HAILSTONES

FROZEN DEW ON FOLIAGE

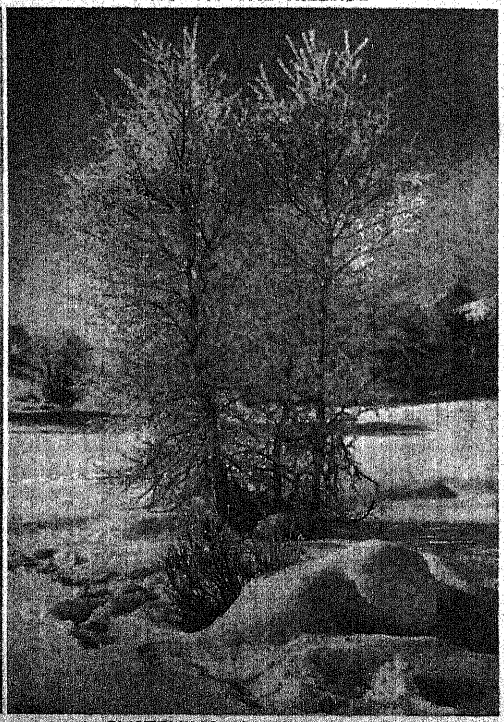


ICICLES ON A FOUNTAIN

MIST ON THE HILLSIDE

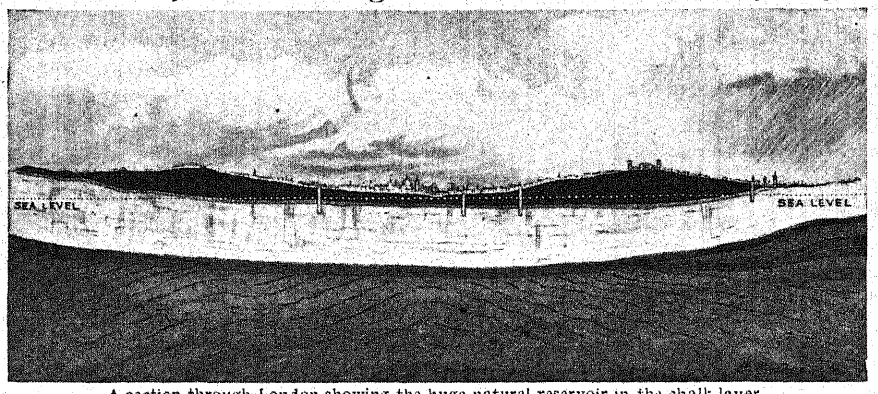


A SHOWER OF RAIN



A GLISTENING MANTLE OF SNOW

The Story of the Things We See About us Every Day



A section through London showing the huge natural reservoir in the chalk layer

A GLASS OF WATER

"I AM so thirsty," says Janet; "please may I have a glass of water?" When she has emptied the tumbler someone says to her: "Where did that water come from?" From the pump. "And where did the pump get it from?" From the well. "And the well?" From the Earth. "And the Earth?" From the rain and the dew.

Janet takes an interest in Nature, and thinks about many simple things which stupid people overlook.

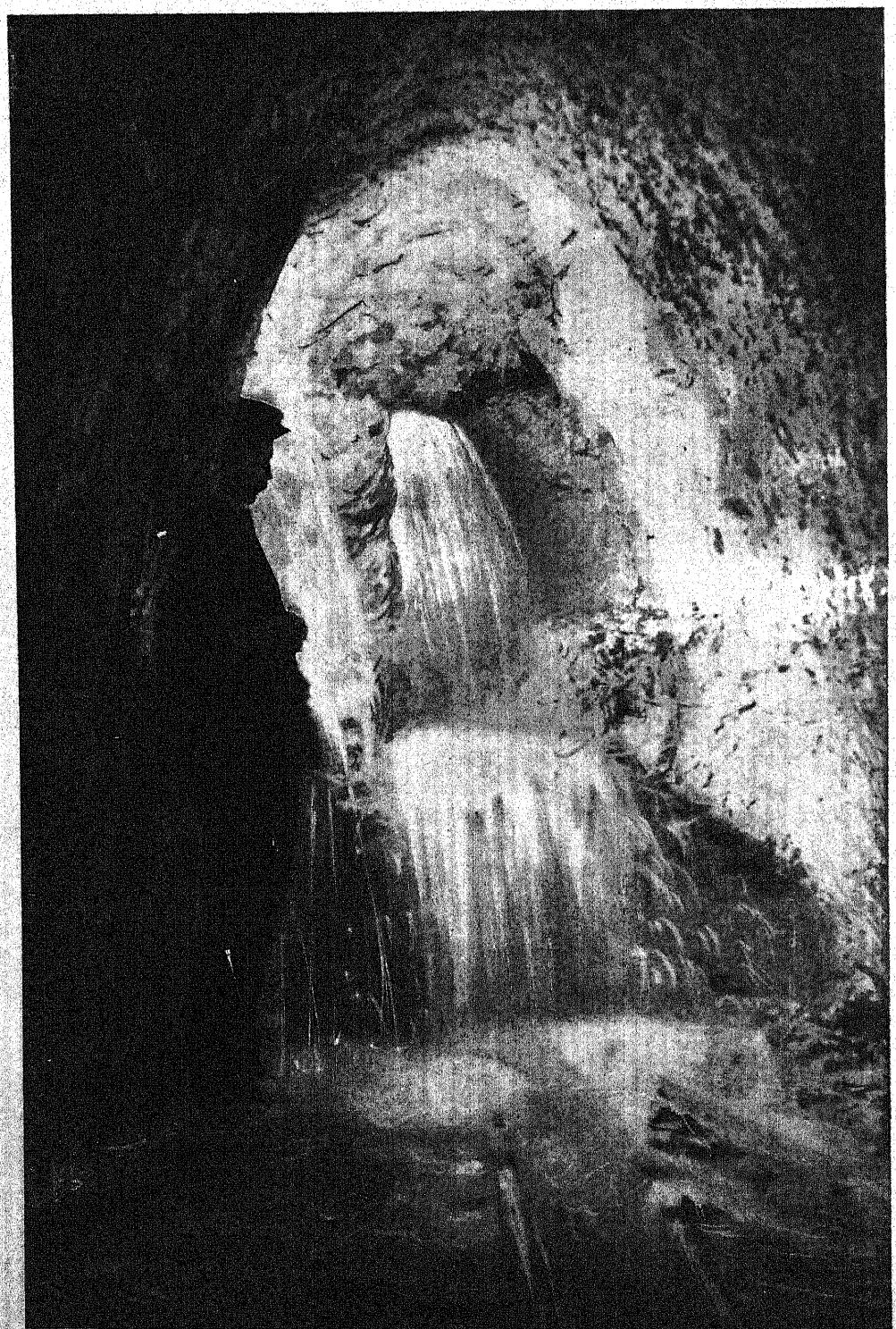
"That glass of water," someone tells her, "may have existed before there was a blade of grass and before there was a living creature on the Earth. You have just drunk something that may have lived through the whole history of mankind.

"How water was first made, and where it came from originally, nobody quite knows. But probably the first water was formed by chemical processes deep in the crust of the Earth, and probably it reached the surface as the steam of a volcano. When the surface of the crust cooled the steam gradually condensed on it, and trickled down, first as rivulets, then as rivers, to form the early sea. It may be that the water you have drunk came from an ancient volcano that was extinct long ages ago, long before human life was possible on the Earth. Perhaps it was that very cup of water which Sir Philip Sidney refused, though thirsty and sorely wounded, when he saw a poor soldier whose need was even greater than his own.

"For the water, dear Janet, ever wanders about. Do you think it is yours for ever? No; you have only borrowed for a little while its cooling kindness. Look; I place a mirror to your lips. What do you see on the glass? That blur of vapour is the moisture of the water. Every breath you breathe gives back your glass of water to the air. The air converts it into dew and mist and fog, into rain and cloud and snow; it will fall in rain to the rivers, in snow upon the mountains, and the rivers will bear it to the seas; the seas will keep its salt and give back its pure moisture to the air; it will descend on the meadows, it will plump the ears of corn which you will eat as bread, it will ripen your peaches, it will bring your daffodils to beauty, it will trickle through the soil to the springs, it will find its way to the wells, and perhaps you will drink some of that water again before you die."

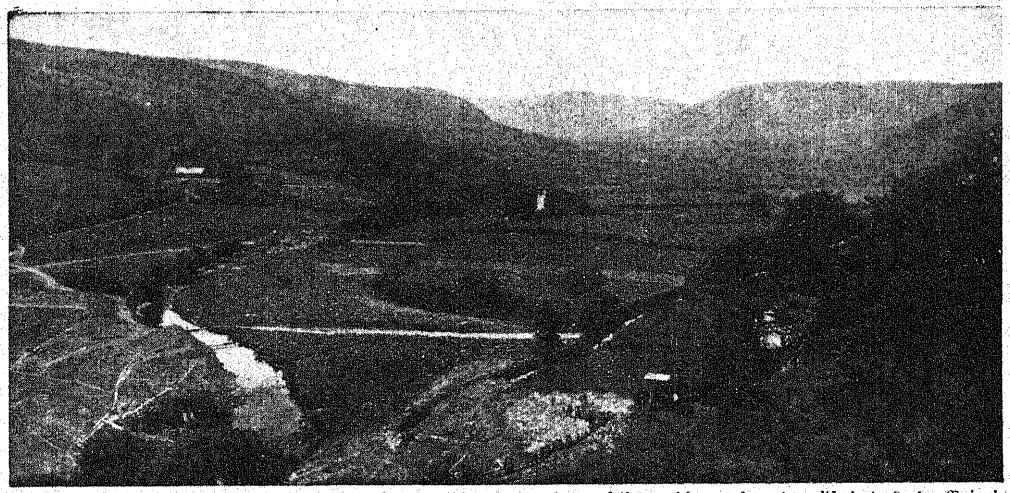
"I am dreadfully thirsty," says Janet; "please may I have another glass? Perhaps I am drinking the very rain which prevented our picnic on Monday, and which we were sorry to see. Well, I forgive it!"

THE PICTURE-STORY OF WATER

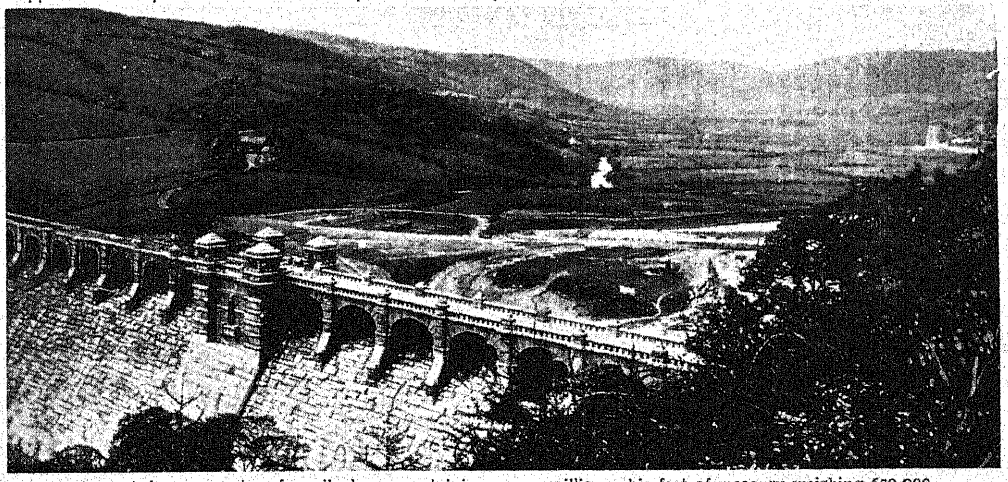


This photograph, taken by Mr. Coles Finch at a Kent waterworks, shows a spring of water that has been tapped deep down in the Earth's crust. It is 260 feet below the ground and yields a million and a half gallons of water a day

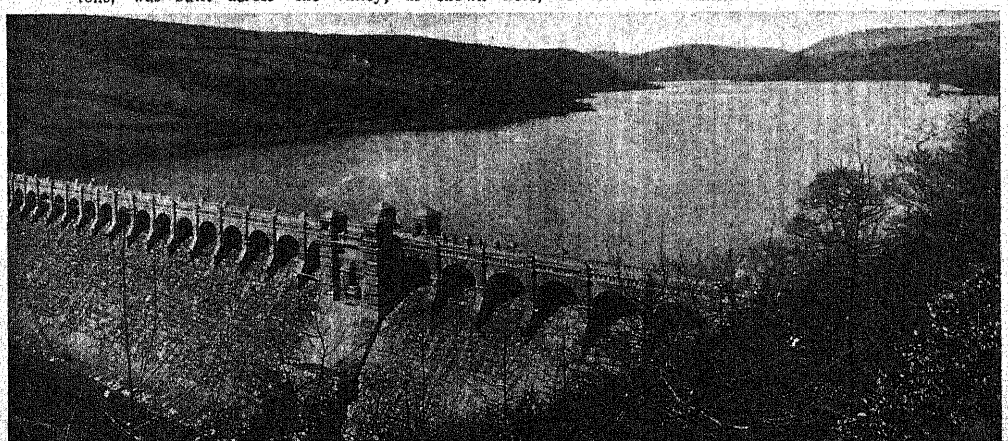
PROVIDING WATER FOR A GREAT CITY



A great city consumes an enormous amount of water every day, and one of the problems of modern life is to find sufficient supplies. These pictures show how Liverpool solved the problem. Here is Vyrnwy Valley in Wales as it used to be.

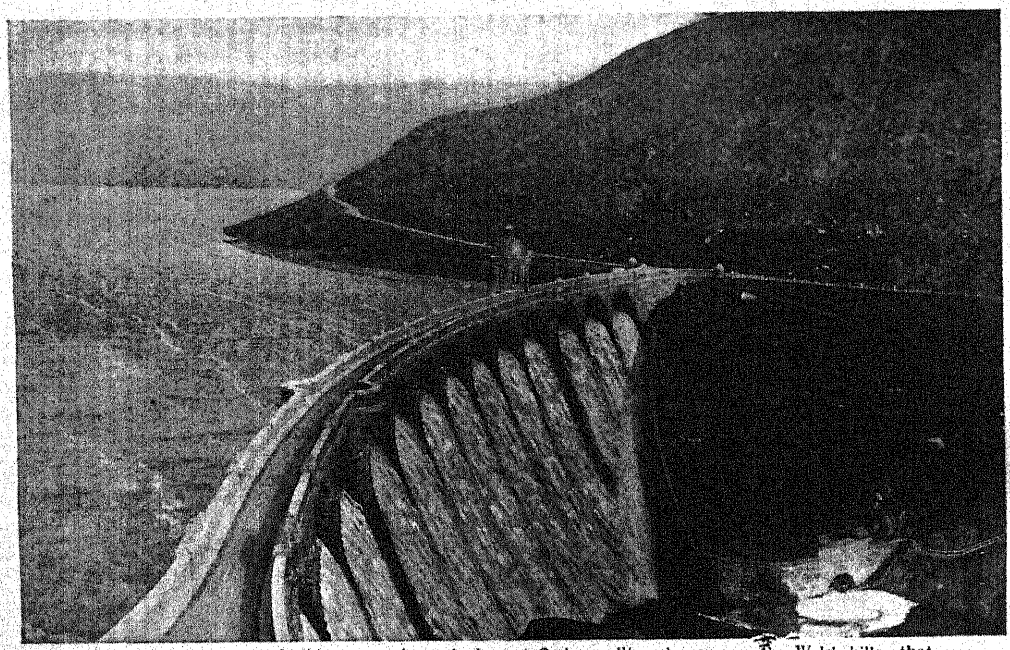


A great dam a quarter of a mile long, containing seven million cubic feet of masonry weighing 679,000 tons, was built across the valley, as shown here, to form an immense barrier to a river.

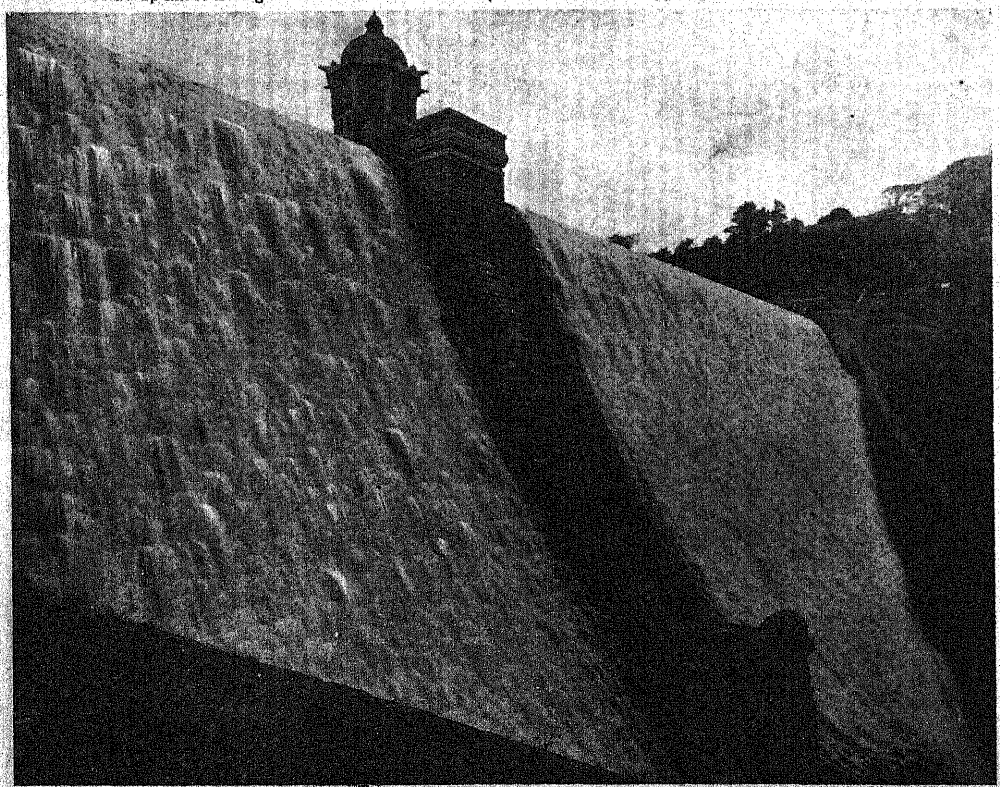


Then the River Vyrnwy, held up by the dam, formed a great reservoir of water for the use of Liverpool, seventy miles away. The reservoir contains 12,000 million gallons of water, which is pumped through pipes to the city as required

TWO NIAGARAS MADE BY MAN

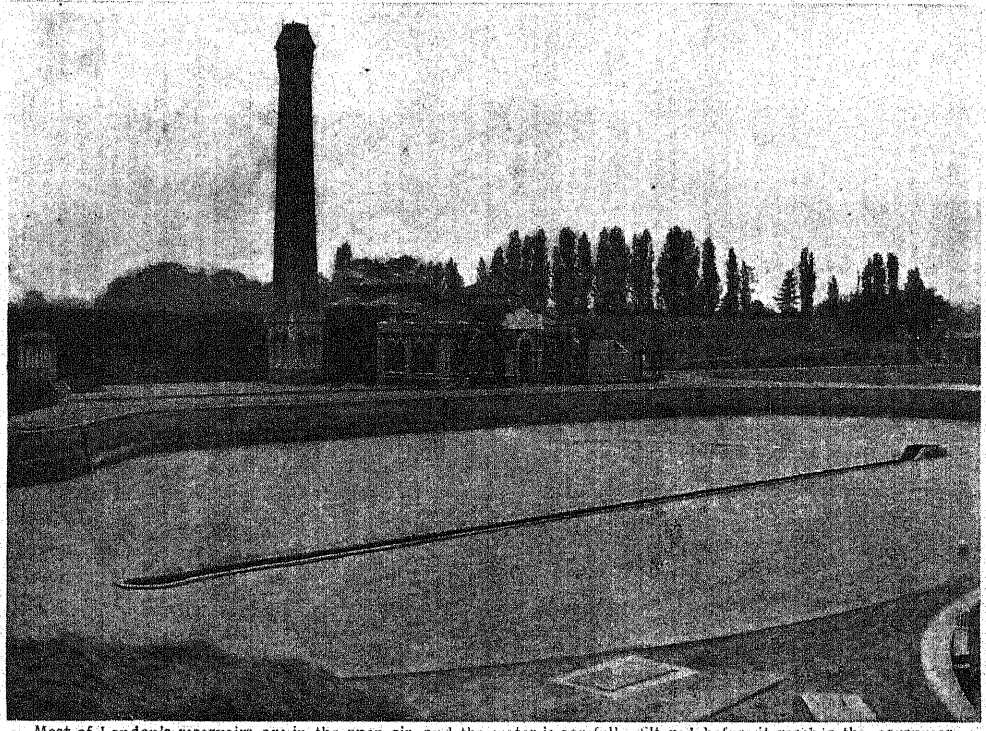


This picture shows the big reservoir and dam at Craig-yr-allt-goch, among the Welsh hills, that holds up millions of gallons of water and forms part of the water supply of the city of Birmingham.

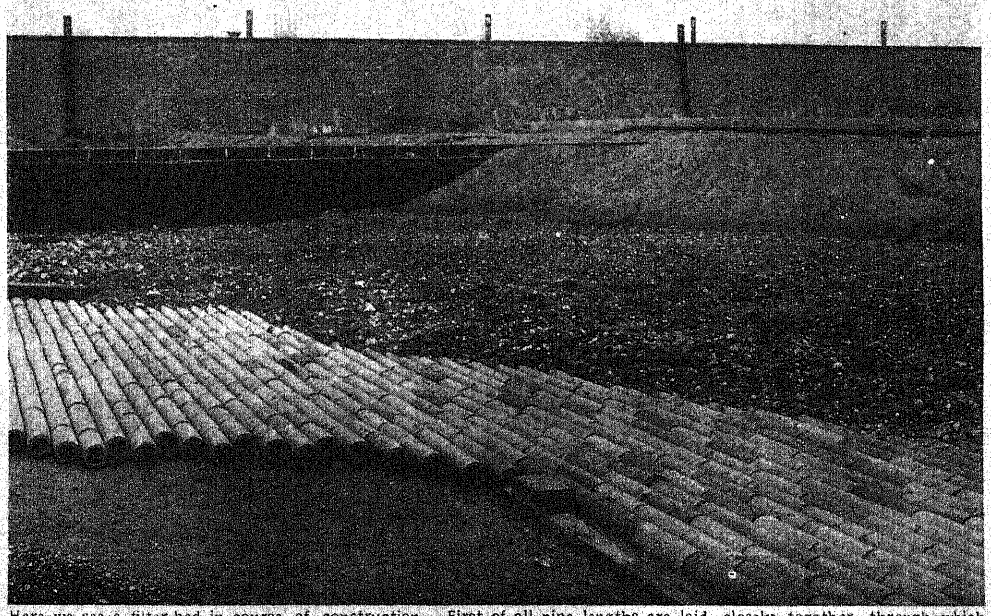


One big reservoir, however, is not enough for a city like Birmingham, and so another dam has been built at Pen-y-gareg in Wales. Together the two reservoirs hold about 12,000 million gallons, and the overflow of surplus water forms cataracts that have been described as Niagaras made by man.

FILTER-BEDS FOR THE WATER OF LONDON

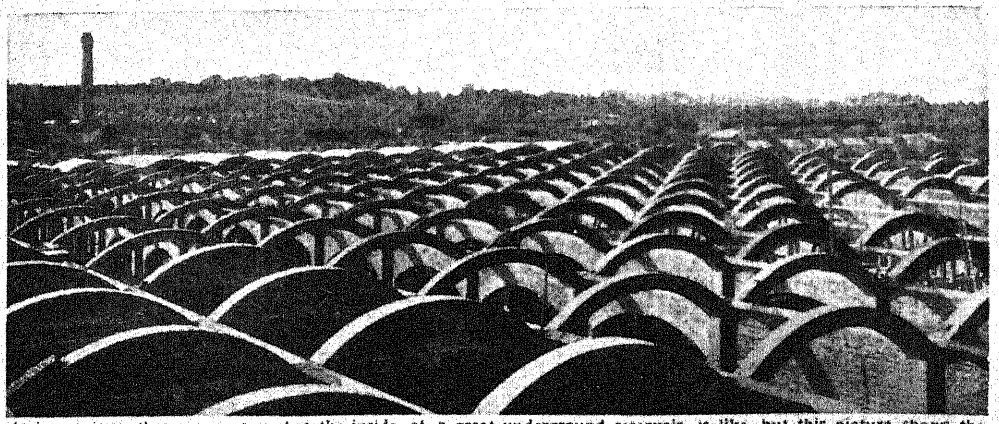


Most of London's reservoirs are in the open air, and the water is carefully filtered before it reaches the consumer. This picture shows one of London's filter-beds ready for work. The filters are cleansed every few weeks.

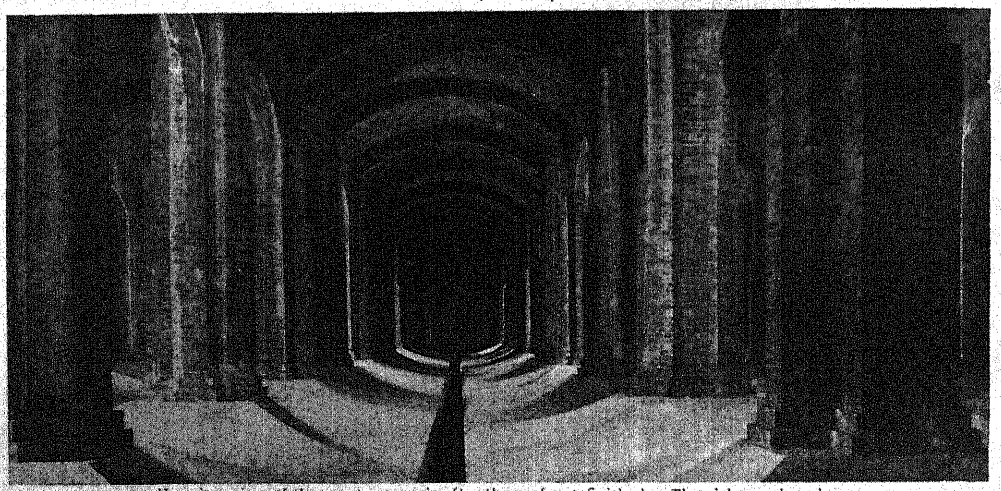


Here we see a filter-bed in course of construction. First of all pipe lengths are laid closely together, through which the water can percolate. Above are several layers of gravel and sand of varying coarseness and of depths ranging from three inches to fifteen inches. The gravel and sand arrest not only solid impurities, but also many dangerous microbes.

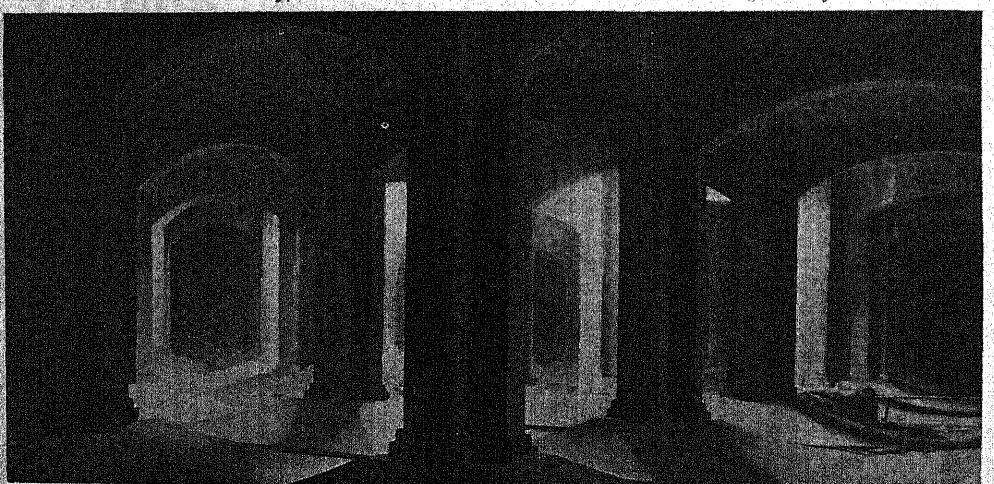
INSIDE A BIG LONDON RESERVOIR



It is not often that we can see what the inside of a great underground reservoir is like, but this picture shows the arches of the covered reservoir at Honor Oak, London, the biggest of its kind in the world. It covers ten acres and 10 million bricks were used in building it. The photograph shows the arches before the top was put on.

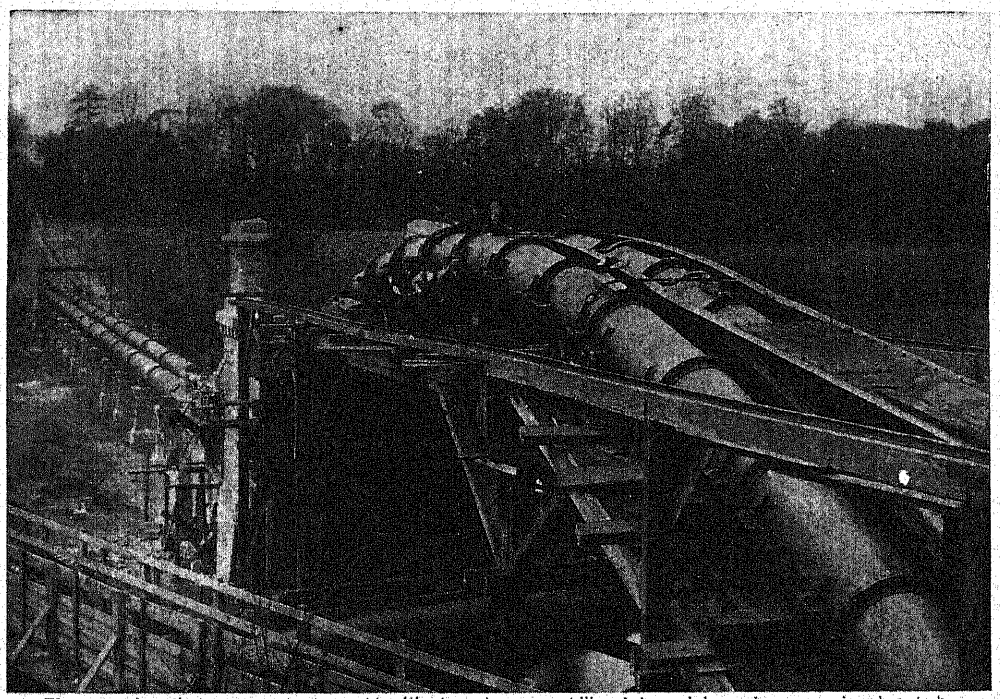


Here is a view of the great reservoir after the roof was finished. The aisles and arches suggest the crypt of a cathedral rather than a reservoir of a great city



This is another view of the great Honor Oak reservoir before the water was let in. It is a view that will never be seen again. The amount of water consumed by Londoners in a year would make a deep lake four miles square.

CARRYING A RIVER ACROSS A RIVER

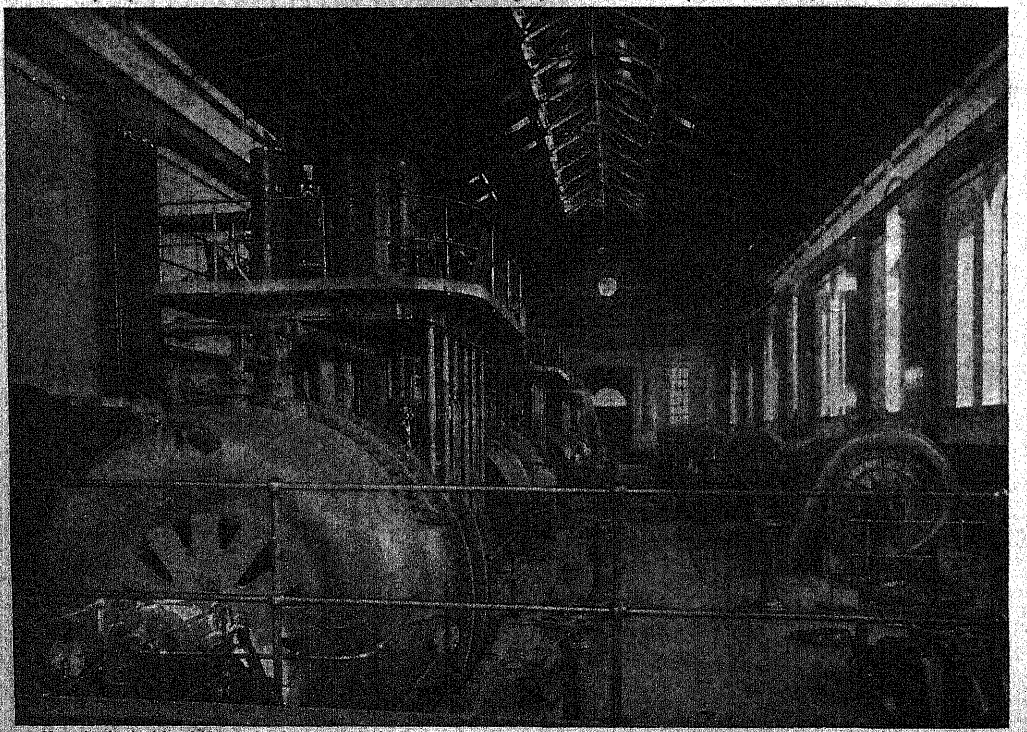


The great pipes that carry water to our big cities have to pass up hill and down dale, and many a river has to be crossed. This picture shows the big pipes that take water from Wales to Birmingham being carried over a river

These are some of the enormous pipes used for conveying London's water supply. They are very strong, and are placed at a considerable depth and covered with earth to protect them from frost. If, however, a pipe should burst at any point much water would not be lost, as self-acting valves would at once stop the flow

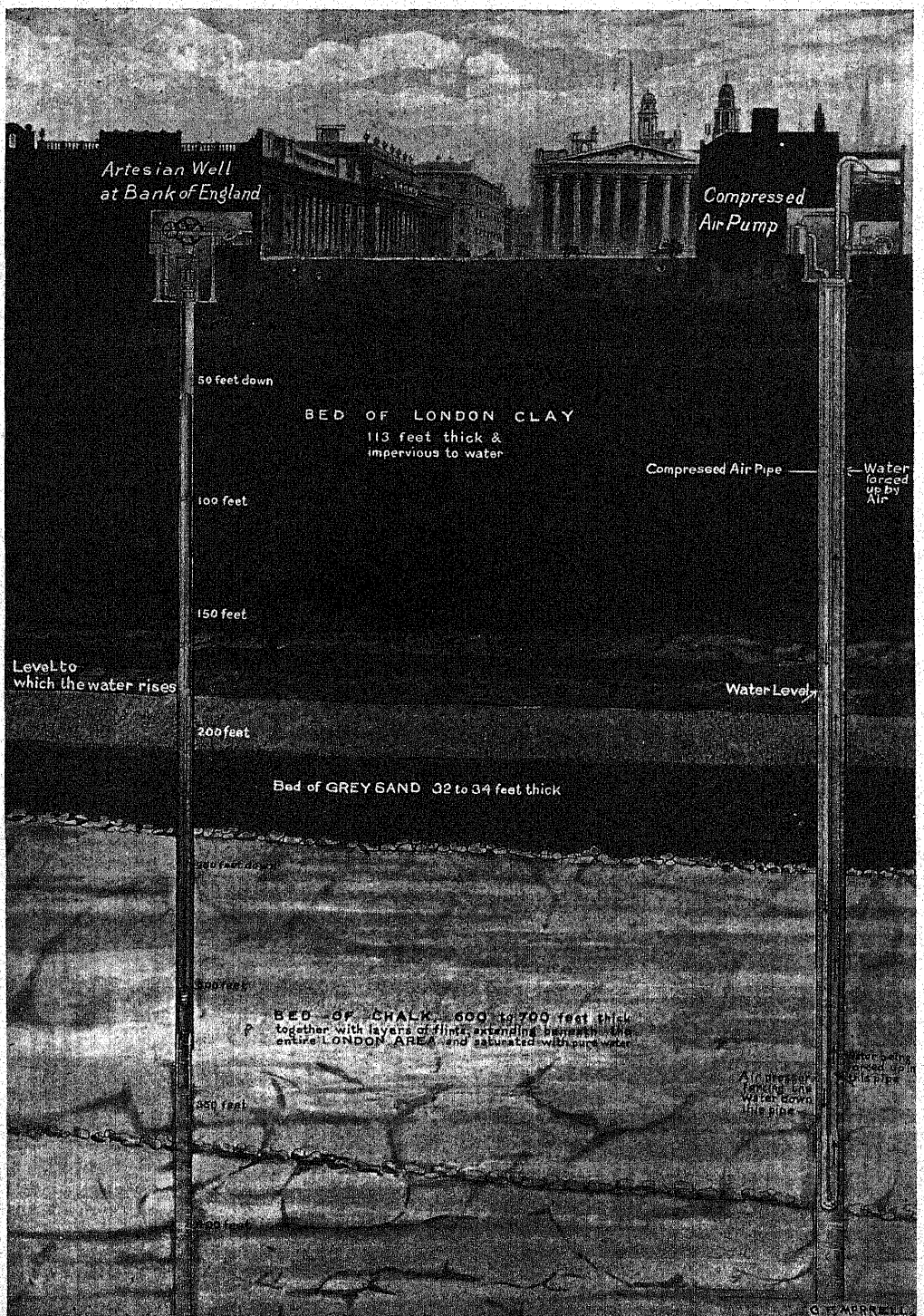
THE GIANT PUMPS OF LONDON'S WATERWORKS

Thames water for London is run into large reservoirs, where it stands long enough to let any solid matter settle down. Then it is pumped to other reservoirs to be filtered. The photograph shows how the pipes leave the power-house at Staines.



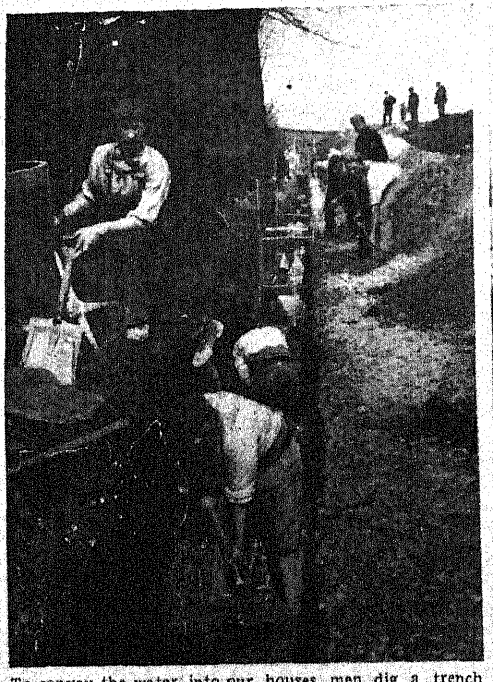
Here is the inside of the power-house at Walton, showing the pumps that pump millions of gallons of water daily through pipes similar to those seen in the upper picture. If these pumps stopped many Londoners would lose their water.

THE NATURAL RESERVOIR UNDER LONDON

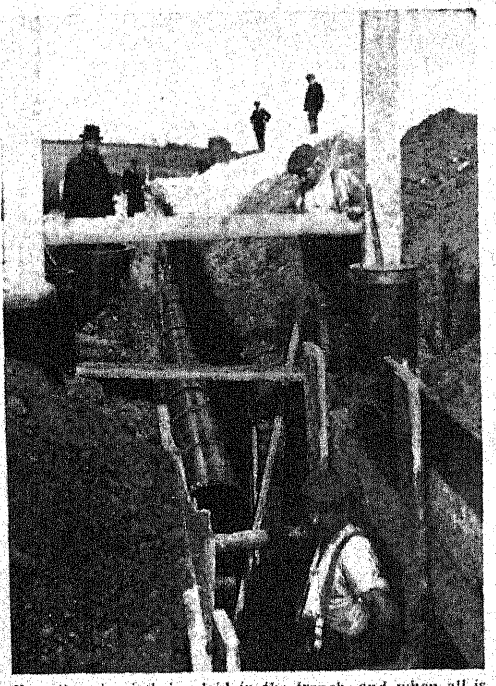


London gets about a fifth of its water from artesian wells. On the left is a section showing the great well at the Bank of England which draws up the water by suction. On the right is a compressed air pump which consists of two pipes connected at the bottom, if we could see far enough down, by a U-shaped bend. The water in the chalk gets into these pipes, and compressed air forced down one pipe drives the water up the other. See also the picture on page 4503.

HOW A BOY TURNS ON A RIVER



To convey the water into our houses, men dig a trench in the street or road big enough to take a pipe, through which water can be pumped from the mains to supply all the floors of the houses along its route.



Here the pipe is being laid in the trench, and when all is made watertight the earth will be filled in and the roadway replaced. Small pipes will then lead off from the large one in the street outside directly into our houses.

At last the water reaches us, and here, flowing brightly from the tap, is the water which has made its long journey to us from the river or lake which forms the reservoir. This boy is actually turning on a river in his mother's kitchen.

Much of the Nation's wealth is in priceless collections like that in the National Gallery, London

WHAT IS THE UNITED KINGDOM WORTH?

THE United Kingdom contains a vast amount of property. There is the land itself, which is the basis of all our work and life. This has been worked upon until almost every yard of it has been changed into some artificial form, from a field or woodland or ditch to the site of some house or factory, or mine. Rivers have been banked, harbours and canals constructed, railway tracks made, pipes or wires laid underground, roads built and land reclaimed from the sea.

When we ask what the United Kingdom is worth the question probably means: What is the total value of the properties so made, together with the stores of food, clothes, and other goods in the warehouses and shops, all the engines, machinery, and fittings in the mills and factories, all the ships and boats we have, and every business, large and small, as a going and growing concern?

It is very difficult to estimate the aggregate value of so many things. The best authorities tell us that the total is about fourteen thousand million pounds. This is such a big figure that it is easier to write it down than to grasp its meaning. We get a good idea of what it means by remembering that the United Kingdom has about ten million families, so that the average wealth is about £1400 a family.

It is important to understand the meaning of these figures. They do not mean that the country has fourteen thousand million pounds *in money*. Money is not itself wealth, but only a measurer of wealth. The £14,000,000,000 represents the money valuation of all the property in the country. It does not mean that all the property could suddenly be sold for this vast sum, which is the market valuation of the goods if they are *not* sold all at once, but if merely ordinary transactions take place.

If all our landowners offered all the land for sale at once the price of land would fall very low. So it would be with ships, or with any other commodity. Therefore, the valuation we have given of the nation's wealth is made on the supposition that the ordinary conditions of things prevails, and that only a small part of any of the property is offered for sale at any one time. That is the same thing as saying that wealth depends on social confidence and credit. It is a great mistake to suppose that there is an enormous fund of unalterable wealth in the country which would remain available under any conditions. If a revolution took place the destruction of confidence would at once destroy a great part of the present value of all the real and personal property in the kingdom.

What Does a Fish Under Water See ?

An inexperienced angler on the bank of the river often thinks that, because he cannot see the fish in the water, the fish cannot see him ; but he is wrong. A fish in the water, when it looks up, sees a round patch of light through which the sky and flying birds have their usual appearance as seen from the bank. But the fish sees also the angler on the bank, the trees, and other objects near by distorted somewhat but nevertheless very obvious and clear. Then, round the circular patch of light and sky, is a more or less ill-defined ring of iridescent colours, something like what we see when we look along the edge of a mirror ; and outside this ring the surface of the water forms a mirror in which is reflected the river-bed and whatever may be upon it—plants, stones, and so on. Ducks, boats, and other objects floating at the surface would appear as dark objects crossing this mirror. See page 4515.

Why are Some People Dark and Some Fair ?

If we examine with a microscope the structure of the skin in animals or human beings, we find that it is made up of numbers of cells arranged in layers. Among these cells are found colouring matters—or pigments, as the artists call them ; and it is the quantity of this colouring matter present in any individual which causes the complexion to be called fair or dark. In very fair people there is very little pigment ; in very dark people, with brown eyes and black hair, there is a great deal of pigment ; while others with not very much pigment are neither very fair nor very dark. This pigment continues to be produced for many years ; but when it ceases the hair becomes grey. We see this more easily in dark people.

Do we Hear in Our Sleep ?

We can hear when we are asleep—if a sound is loud enough. It is only when a man is unconscious through some poison that the loudest sound will not wake him. But when we are asleep we do not hear slight sounds, and the reason is that in sleep the part of the brain which hears is much less sensitive than usual ; and so, though soft sounds reach the ears, and affect the nerves that run from the ears to the brain, the brain takes no notice. It has been proved that during the earlier part of the night we require much louder sounds to wake us than towards morning. So it is the earlier part of our sleep that is deepest and best for us, and there is good sense in calling this part of our sleep " the beauty sleep." Very often we do hear when we are asleep, but, instead of the whole brain being awakened, only part of it wakens, and so we have all sorts of dreams that were really started by some noise. It is possible to whisper into a sleeper's ear and give him dreams in this way, without waking him ; but this is certainly not a wise thing to do.

Why are Plants Grown in the Dark White ?

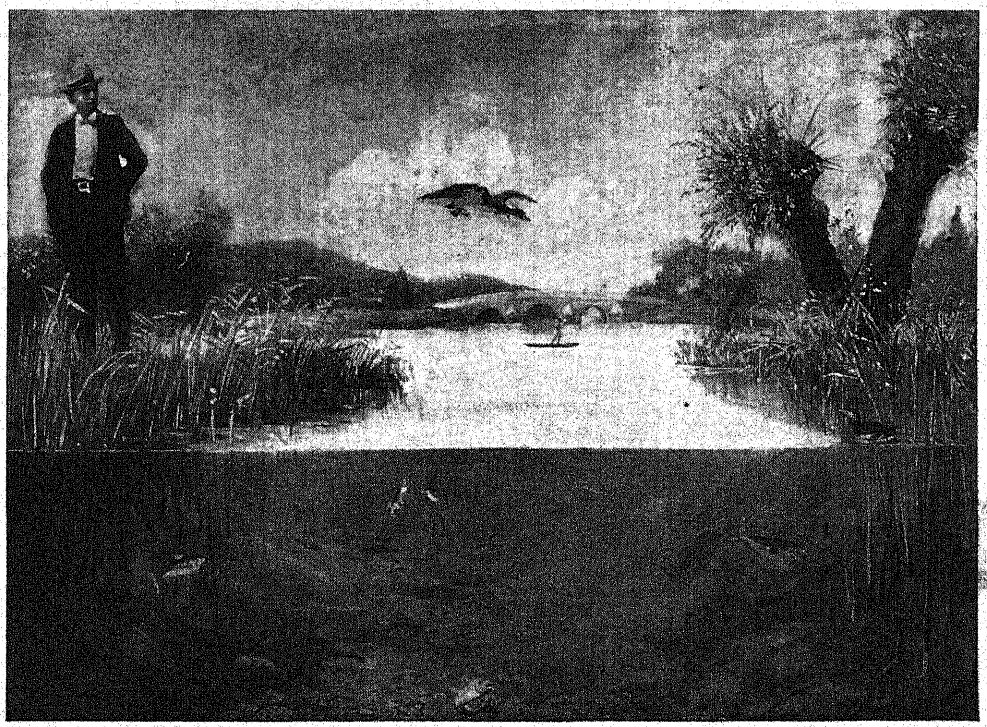
The green stuff that we know so well in plants is made by sunlight, and it is made in order to use sunlight. Without it the plant can do little. If the plant is grown in the dark the green stuff is not made, and without it the plant is white. The green stuff in plants is like the red stuff in our blood ; though these two things differ in colour and in the work they do, their use is very similar. They both contain iron, which has a way of giving colour to almost anything it is found in. They both demand sun for their making, and if plants grown in the dark are white, so also are children grown in the dark, because their blood has not enough red stuff in it. It is cruel to grow children in the dark, but there are millions who are grown in this way, and whose lives are spoiled for want of the red stuff, just as the plant is spoiled for want of the green stuff.

Why Do not we Feel the Earth Going Round ?

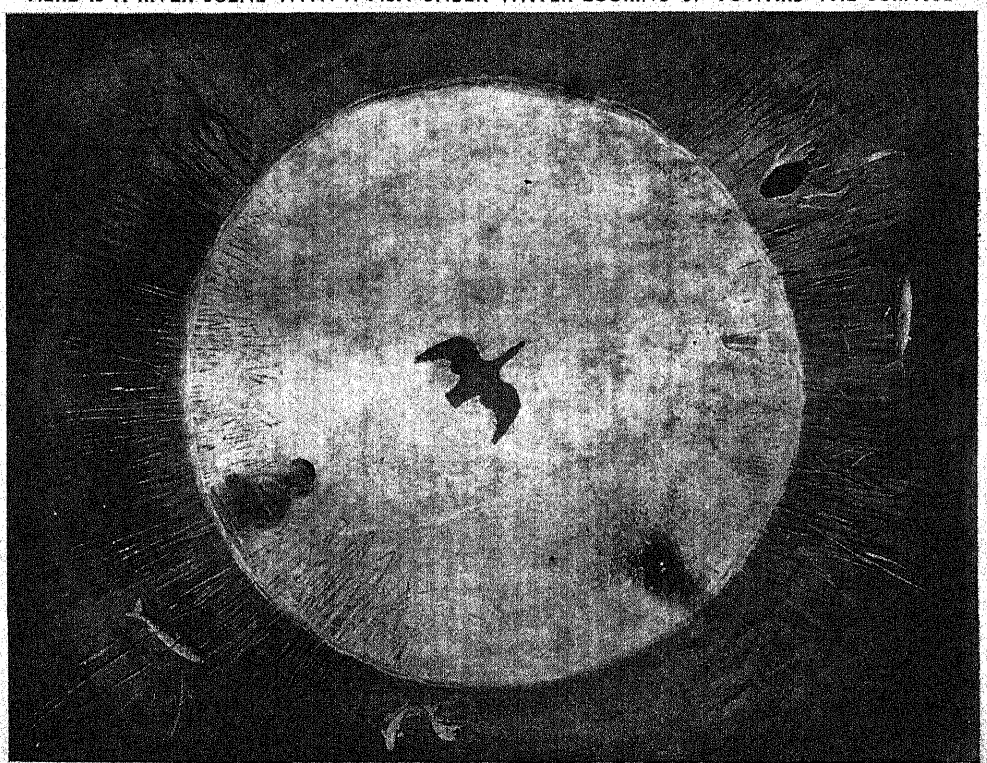
The answer to this is that we are going round with the Earth, and, as we move round with it at exactly the same rate we notice nothing. If you were in a train and did not look out, and the train moved at a constant speed in a straight line, and gave no jolts, you would not know whether it was moving or not.

The real lesson we learn from this question is that the only kind of movement we can feel is *relative* movement—that is to say, movement of one thing as compared with another. If the Earth or a train moved more slowly or more quickly than our bodies, then we should feel the movement. If we could imagine our body moving alone in space with no stars for mile-posts, then we should not know it was moving, for there would be nothing to compare it with. We can feel relative motion simply because there is something to compare it with.

WHAT A FISH SEES WHEN IT LOOKS UP



HERE IS A RIVER SCENE WITH A FISH UNDER WATER LOOKING UP TOWARD THE SURFACE



THIS PICTURE SHOWS EXACTLY WHAT THE FISH SEES AS IT LOOKS UP

Why do People Walk in their Sleep?

There are two parts of our mind which control all our movements and actions. One part has to do with all those things which *we know we are doing;* while the other part does things *without our knowing.*

We do quite a lot of things without being conscious of them. For instance, we do not think about breathing, though we are always doing it. We do not think about our heart beating, although it never stops as long as we live; and there are some things we can learn to do so well as to be able to do them without thinking at all. Walking is one of these things.

Now, acts of this kind are sometimes done by people in their sleep, and they can do them just as well asleep as awake, because the mind has got so used to looking after such acts that it does not require us to be conscious when doing them.

So some people are found to walk in their sleep because one part of the mind is wide awake when the other is asleep. The curious thing about it is that, just because the walker is asleep and not conscious, he can walk over dangerous spots which would probably cause him to fall through nervousness if he were wide awake. As he is not conscious he generally walks safely, and remembers nothing about it.

Is it Right to Hate Anything?

Yes; there is one thing we should hate, and hate with all our souls. It is *Hate.* A great Frenchman, at the close of the Great War, cried out to the world:

> Arouse the hate of hate;
> Glorify work and love.

It was one of the saddest cries that ever came from the spirit of a brave man; it was almost an act of despair. And yet this sad cry of Anatole France, with his heart wrung by anguish and his spirit broken by the thought of human suffering, is like a trumpet-call.

"Towards hatred alone do I feel hate!" cried Anatole France. He had sympathy and help for the foolish, the weak, and the erring; but for those who teach hatred he had nothing but hate—the tremendous hate of a loving heart, the anger of a soul that breathes nothing but sweetness and sympathy.

"Burn all the books which teach hate!" he cried. And why? Why was this old man so eager for us all to destroy hatred? Why was he so passionate to leave a legacy like this in the world where he cannot be much longer? Because he knew in his soul that children now playing in the fields of the world would be smashed into deformity, broken into agonising cripples, blown into dust and cinders by chemical shells, unless we emptied our hearts of all hate, and cultivated a feeling of brotherhood, a universal love for others.

He was terrified of the world's future, afraid for the child in the street and the baby in its mother's arms. *Not one of these little ones is safe as long as hatred is in the world.* Hate degrades man to the level of the beast, and man can only feel the glory of life while he is ascending the stairs of love to the stars of God.

What is the Prayer for the House of Commons?

This is the beautiful prayer with which the House of Commons opens the day's sitting, except on Friday:

ALMIGHTY GOD, by Whom alone kings reign and princes decree justice, and from Whom alone cometh all counsel, wisdom, and understanding:

We, Thine unworthy servants, here gathered together in Thy name, do most humbly beseech Thee to send down the heavenly wisdom from above, to direct and guide us in all our consultations.

And grant that, we having Thy fear always before our eyes, and laying aside all private interests, prejudices, and partial affections, the result of all our counsels may be the glory of Thy blessed name, the maintenance of true religion and justice, and the safety, honour, and happiness of the King, the public welfare, peace, and tranquillity of the realm, and the uniting and knitting together of the hearts of all persons and estates within the same in true Christian love and charity one towards another, through Jesus Christ our Lord and Saviour. Amen.

The proceedings of the House of Commons open with this prayer, after which Questions immediately begin.

What is the Meridian?

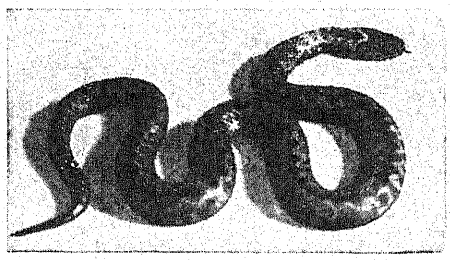
The lines by which we divide up the world on maps are known as meridians of longitude and parallels of latitude, the meridians of longitude being imaginary curves drawn from pole to pole. They are usually numbered east and west from the meridian which passes through Greenwich. The word meridian comes from the Latin *meridies,* meaning mid-day; that is, towards the Sun at noon.

How Does a Snake Move Along?

To watch a snake or a serpent gliding smoothly and silently along the ground is to see one of the most marvellous things in natural history. One of the wisest men who ever lived confessed that the motion of a snake was one of the things that he could not understand.

Three parts of the snake's body take part in its movement—the backbone, the ribs, and the large horny scales underneath. It is by muscles moving these parts in certain ways that the snake glides.

As a matter of fact a snake walks on the ends of its ribs—a curious use for ribs to be put to. The ribs are very numerous, there being one for each part of the backbone. Each rib is also fixed to one of the large belly scales. By the action of the muscles on the ribs these scales are moved forward one after the other, their edges catching the ground, and the result is a rapid gliding motion.



HOW THE SNAKE GLIDES ALONG

The body always moves from side to side in a wriggling or writhing manner; never up and down. It is the very flexible backbone that allows this writhing movement, and the structure of the backbone also allows of its being broken rather easily, as hunters know well.

So the movement of a snake is really very like what happens when a boat is being rowed through the water. The ribs correspond to the oars, the ribs gripping the ground by the scales to which they are attached, just as the oars grip the water; only the snake's back is flexible, while a boat is rigid. Therefore, if we watch the snake in motion we see the movement pass along its whole length in a wavy manner, as each rib on each side moves after the last in rapid succession.

Why Does Steel Strike a Spark When Hit by a Stone?

Remember that nothing in the world is ever lost, but only changed. When we strike steel with a hard stone the movement of the stone is not lost, but is changed into something else. No power goes out of the world—though it may be wasted by not serving any good purpose. So we may say that the movement of a stone—which comes from the movement of your arm, which comes from the power in your food, which was made by the light of the Sun—is changed into heat and light, and this shows itself in a little bit of the stone which is chipped off, and which shows its light for a moment as it jumps and falls; and that is what we call a spark.

What Keeps a Train on a Topsy-turvy Railway when Upside Down?

Of course, the puzzle is that when the train is upside down there seems to be nothing to act against the force of the Earth's attraction, which is always pulling on it. Now, the train does not fall, and we are certain that gravitation is always acting, so that there must be some other force acting which is powerful enough to act against gravitation so as to keep the train on the rails. The same thing is seen when we swing a pitcher of water round without spilling the water. What is it that keeps the train on the rails, or the water in the pitcher?

We know that if the train stopped moving when it was upside down, or if the pitcher was similarly stopped, the train or the water would fall. Therefore the force we are looking for, that balances the force of gravitation, must be somehow *in the motion* of the train or the water.

And so it is. Anything in motion has force in it, as we know when someone bumps up against us. This force acts in the line in which the thing is moving. But when a thing moves round and round this force is still working in a straight line, so that the thing always tends to fly away from the circle in which it moves. This force is called *centrifugal* force, which means the force that flies away from a centre or outward. It is this centrifugal force produced by its motion which always presses the train against the rails in any part of its course, or the water against the pitcher. It is this force also that keeps the Earth from falling into the Sun; and if train, or water, or the Earth itself were stopped in its course, or did not go round quickly enough, each would certainly fall with disastrous results. These great laws of the Universe act in big and little things alike: "The law that moulds a planet rounds a tear."

What Makes a Rocket Go Up?

A rocket is made to go up into the sky by means of an explosion, just as a bullet is fired from a gun. All explosions are of the same kind; they are due to gas which has been compressed forcing its way out so that it can occupy more space. If we allow it to force its way out only through a certain route, and if we put a bullet or a cork or a rocket in its way there, it will drive these things out, and may send them miles away.

Why has Every Cloud a Silver Lining?

The reason is simply that at its edge the cloud is thinner, and much more light can get through it. It is that light which gives the cloud its silver lining. Some clouds, however, are very thin, like a sheet of tissue paper in the sky, and we can scarcely notice the silver lining to them. If we went up above an ordinary cloud we should see the whole cloud bright, because the Sun would be shining on it, and it would throw back or reflect the Sun's light to our eyes. This is true of the darkest and blackest clouds all through the daytime. The Sun is always shining, and the darkest cloud has a bright side.

The trouble for us is that we see the dark side, but we ought to remember that the bright side is always there. Of course, as we see, all this may have a meaning that applies to the troubles of life, big and little. That is why people remind us that every cloud has a silver lining. But it is even better than that, for every cloud has a silver side just as bright as the other is dark. Some people's minds are just like our eyes when up in a balloon. They seem to see every cloud on its silver lighted side. These are the people it is good to live with.

Who was Helen of Troy?

Helen of Troy was the most beautiful among all the women of her time; so beautiful that twenty-eight princes claimed her hand. She chose Menelaus, King of Sparta, for her husband, and they lived happily together for three years, with little Hermione, their daughter.

But one day Paris, son of King Priam of Troy, called at the court of Menelaus, and, struck by the beauty of the Queen, could not rest till he had carried her away to his own country. So the Greeks were stirred to war against Troy, a war which lasted many years and became one of the most famous events of antiquity. After ten years of fighting, during which Hector, the Trojan Chief, and Paris himself were killed, the city was burned to ashes by the Greeks. Helen then returned with Menelaus to Sparta.

But when the Queen at last became a widow so many Greeks hated her for the terrible war she had caused that they drove her from the court. Exiled at Rhodes, she met with an enemy there, Queen Polyxo, whose husband had been killed in the Trojan war. Polyxo prepared a bitter revenge; she had Helen tied to a tree and strangled. The story of Helen has appealed to many writers ever since Homer first told it, but whether there ever was a Helen, or whether her story is true, is still uncertain.

Does the Earth Make the Air we Breathe?

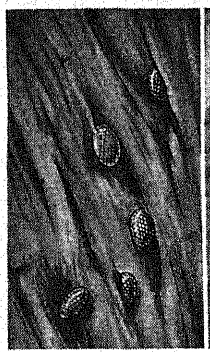
The air we breathe is part of the Earth, and has been so from the beginning. At one time the whole Earth must have been gaseous, and what we now call the air is simply the part of the Earth that is gaseous still, and, being lighter than the solids or the liquid part of the Earth, lies outside these, and forms a thick envelope for them both. Any sun or planet that is large enough has an envelope of gas round it. We should not say it *made* this envelope, but that the envelope is the part of it that has remained gaseous.

It is true, however, that the Earth makes its own air, in the sense that the composition of the atmosphere is always being changed by the things that happen at the surface of the solid Earth, or at the surface of the seas. Gases are passing into the atmosphere from living creatures and from the sea, and other gases are passing to living creatures and the sea from the atmosphere. Every shower of rain alters the composition of the air in some degree, and so does every breath we breathe.

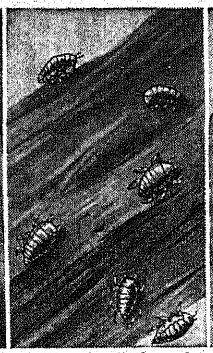
Why Cannot we Walk Straight When we Shut our Eyes?

When we find we cannot walk straight with our eyes shut, the reason is not in our stride, but in the difficulty of balancing. Our eyes are of the greatest importance in helping us to balance our bodies, and without them the weight of our bodies is apt to go too far on one side or the other, and then we have to take a step accordingly to save ourselves from falling, and we thus lose the straightness of our course.

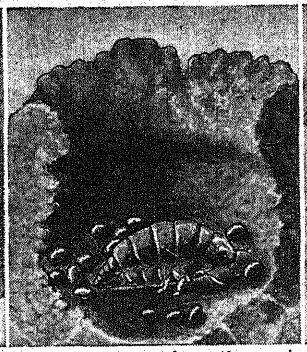
THE LIFE-STORY OF THE GRAPE-VINE APHIS



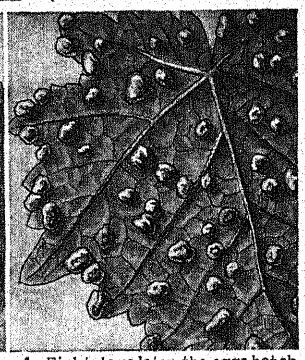
1. Through the winter many tiny oval eggs are found on the bark of old grape vines. They have been laid by an aphis called phylloxera, an imported American pest.



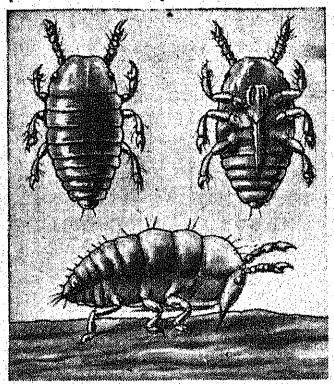
2. In spring little grubs hatch out and make their way to the leaves, which they bite, causing a depression that swells on the underside of the leaf into raised galls.



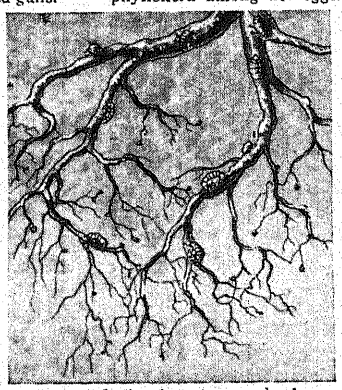
3. In about 15 days the grub changes into a yellow, wingless female aphis, which fills its galls with tiny yellow eggs, and then dies. Here we see the inside of one of the galls with the mother phylloxera among her eggs.



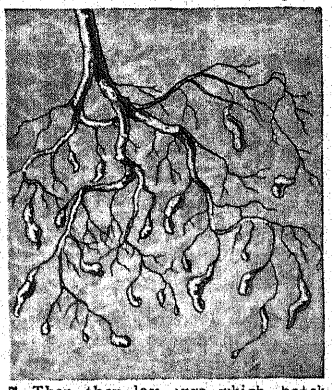
4. Eight days later the eggs hatch into females like their parent, and these migrate to all parts of the vine to form new galls. Six or seven generations follow one another, and the leaves are often studded all over with galls.



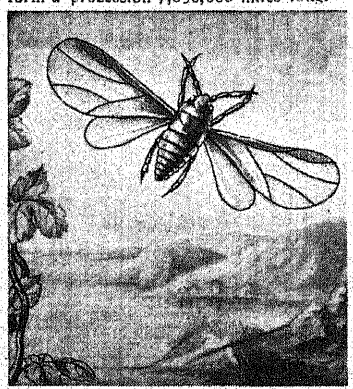
5. Here is a wingless female greatly enlarged, viewed from the top, the bottom, and the side. If the offspring of one of them all lived, in one year the aphis would produce nine and a half million million insects that would form a procession 7,850,000 miles long.



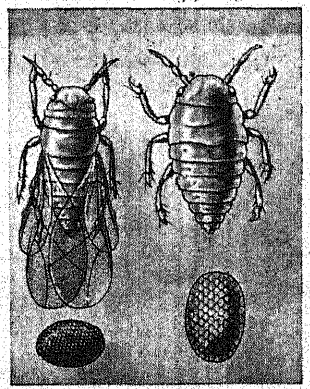
6. Some of the insects crawl down to the roots of the vine during the summer and all do so with the approach of winter. In spring these attack the rootlets, piercing the fibres, sucking the sap, and producing numerous swellings, or galls.



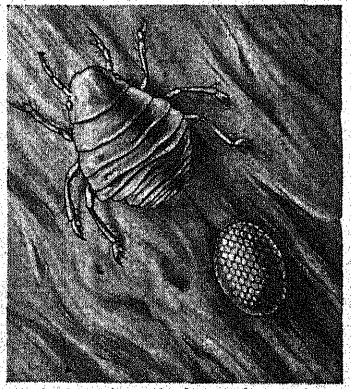
7. Then they lay eggs which hatch out into wingless females and these again produce generation after generation during the summer, all attacking the root till the whole plant perishes. In the picture we see the root with its many swellings.



8. Late in the summer some of the root eggs hatch out into winged females, which escape through cracks in the soil and fly to neighbouring vines, where they lay two kinds of eggs under the loose bark of the stems.



9. The smaller eggs, of which there are fewer, hatch out into female insects in about ten days, and the larger eggs become wingless females, as on the right. On the left is a winged female. This is the only stage showing sex.



10. In four days the female lays a single egg nearly as large as herself, and this remains through the winter under the bark hatching out in spring and repeating the strange life-story. In France the phylloxera lives almost entirely among the roots

What is the Blue Light on the Sea at Night?

This is phosphorescence. The light on the sea, and the light shown by phosphorus when it is exposed to the air, or to oxygen, are due to the same cause, slow burning or oxidation. There is no free phosphorus in sea-water, and, though there are salts containing phosphorus, they have nothing to do with its phosphorescence. But the sea is really full of living matter, and of matter which has been alive—the bodies of dead sea-creatures, some animal and some vegetable. These are slowly oxidised by the oxygen which is dissolved in the sea-water, and has been got from the air, and as they are oxidised, or burned, they give out the faint light which we see.

Can a Dead Island Become a Living Land Again?

The power Nature has of recovering from disaster of the most devastating kind is almost incredible. One of the most striking examples is that of Krakatoa.

This island in the Straits of Sunda was, up to August, 1883, a verdure-clad land over five miles long and over three miles broad. On the south side was a mountain peak 3000 feet high, and from the sea-shore to the top of the peak the island was covered with impenetrable tropical forest. The mountain was known to be a volcano, but the volcano was supposed to be extinct.

But it was only asleep, not dead, and on August 26, 1883, the sleeping volcano woke up, and by the end of the month the most terrific eruption in history occurred. Two thirds of the island was blown into space, the mountain was split from top to bottom, and what remained of the island was converted into a lifeless wilderness covered with volcanic ash to a depth of over a hundred feet. Scientists who visited the island after the eruption declared that no animal or vegetable life could have survived the cataclysm.

Yet within three years ferns and flowering plants were beginning to grow on the island again, the seeds having been carried by sea, wind, and birds. By 1897 the ground was in many places covered with vegetation, and nearly a hundred sorts of plants were counted. By 1906 a complete transformation had been effected. The whole of the south side of the island, from the beach to the peak, was covered with vegetation, including a belt of forest and groups of coconut palms. Some of the trees were fifty feet high. Ants, gnats, and wasps were everywhere. By 1921 the whole island was once again clothed with dense vegetation, and animal life was both varied and numerous. A snake 18 feet long was found, and two other reptiles, with 16 kinds of birds, 32 kinds of spiders, and about two hundred species of insects.

The island devastated and sterilised in 1883 was in less than forty years reclothed and repeopled.

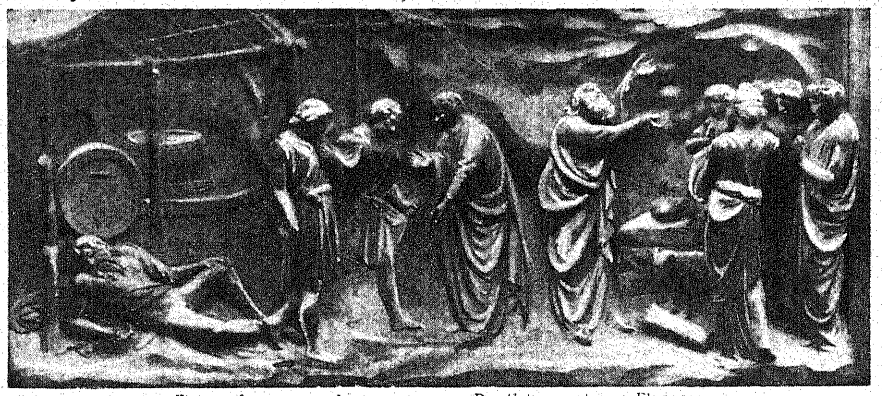
What was the Tarpeian Rock?

Ever since the carrying off of the Sabine women by Romulus, who needed them to people Rome, which then was newly built, the Sabines had been at war with the Latins.

Tatius, the king of the Sabines, had besieged Rome; but the capitol, Rome's citadel, was well manned, and resistance was prolonged. At last Tatius sent a secret message to Tarpeia, the daughter of his enemy Tarpeius, who commanded the garrison of the Capitol, saying: "What would you expect from us in exchange for the keys of your city?" The maiden loved riches. "Promise to let me have what all the warriors hold in their left hands," she replied, guessing that they wore golden rings and bracelets. The chief agreed, but Tatius disapproved of perfidy, and, when the gates of Rome opened before him at night, he not only threw his jewels at Tarpeia but his shield too. His men did likewise, and Tarpeia was slain. The Roman chief's daughter was buried on a high rock, since called the Tarpeian rock, after the treachery of Tarpeia. When the Tarpeian rock is now mentioned, however, it is not in connection with this story, but because it became famous in later times as the height from which Roman traitors were hurled to destruction.

Why has a Doctor a Red Lamp at his Door?

The red lamp at a doctor's door is used as a sign that a doctor lives there; and the red colour was probably chosen for one of two reasons. Red is a colour easily seen from afar, or it may have been selected in the days of the barber-surgeons when blood-letting was in vogue, in order to suggest that important part of the old practice. In the same way, the red and white band round the barber's pole is said to represent the lint that was wrapped round the arm after blood-letting.



Figures from a panel on the famous Baptistery gates of Florence

ITALY'S IMMORTALS

THERE are many people who think that since the art of Greece there has been nothing worthy. On the other hand, most of the very modern artists rule Greek sculpture out altogether, as being too smooth and soft, too prettily musical.

Between these two extremes of thought lies the accepted faith of the mass of art lovers who, not being artists themselves, can perhaps as onlookers see most of the game; they believe that so far there have been two great movements in the story of the world's sculpture, the Greek and the Italian. After Athens, Florence: the two queen-towns in art's dominion.

Most of the Italian sculptors were Florentine by birth, and the great bulk of their work remains in Italy. This is one of the reasons why people come from all ends of the Earth to visit Florence and Rome. A large number of famous Italian paintings have been carried away into other countries; the sculpture, mercifully, stays at home, and looks much more beautiful there than in a cold museum in London or New York.

Italian sculpture really began in the middle of the thirteenth century. The first great master was a man called Niccola who first worked in Apulia, where one of the emperors had encouraged a body of artists to develop a school; and then, among other places, at Pisa. From this town he got the surname by which he is now known, Niccola Pisano.

We must not allow ourselves to think that Niccola was the first of an unbroken procession of Italian sculptors. He is an isolated and unique presence—in a way, a procession in himself. His art was a little Gothic and the rest Roman—what we call now, antique. More than a hundred years had to pass before another great sculptor arose in Italy, and by that time Roman art seemed to be forgotten.

Niccola was born about the year 1206. His best-known works are two marble pulpits, one in Siena and the other in the Baptistery at Pisa—generally called Niccola's finest production. It is a remarkable piece of sculpture, hexagonal in shape, supported by nine columns. The most striking feature is the relief work, which is carved very deeply so that the figures are almost separate from the background.

If we saw nothing but these reliefs we should say the sculpture was the work of a Roman artist, as their whole feeling and treatment is antique. In form alone is the pulpit Gothic. The Virgin Mary seems like a Roman matron, the figure of Christ like an adapted athlete, and the rest of the forms in the relief bear a likeness to Rome. It is easily explained by the fact that

Niccola spent his youth in Apulia, studying Roman sculpture and coins.

The pulpit in the ancient Baptistery at Siena is larger and more profusely adorned. Niccola had a very serious fault—he crowded his compositions. For that matter, Niccola did many things wrongly according to the canons of art; his heads are too big, his figures are too uneasy. They all crowd to the front; there is no perspective. But the interest of Niccola lies for us in his art seen from the point of view of his period. Italy had been dead, artistically, so long. Here was the first man to do something vital in art.

THE WORK OF THE PUPILS WHO FOLLOWED NICCOLA PISANO

Niccola's son Giovanni was also a sculptor, but more of a jog-trot nature. Still, the people of Pisa, who were intensely interested in these new and beautiful buildings and sculpture rising round them, were very thankful that Giovanni was left when, about 1278, fine old Niccola died. "Thank God there is someone to carry on the work," they said. In effect, neither Giovanni nor Niccola's many pupils carried on the master's peculiar work. They were sculptors of a more realistic kind, and were more influenced by the art that was being produced in Flanders and France than anything else.

With the next sculptor we are thinking of, Lorenzo Ghiberti, Florence takes her place as the home and working centre of a number of geniuses who rise slowly to the stupendous height of Michael Angelo.

THE WONDERFUL GATES AND WHAT MICHAEL ANGELO SAID OF THEM

One of the most famous pieces of bronze relief work in the world is that of the Baptistery doors at Florence. These gates are well known now because of the quality of their decoration; they were for a generation or two a household word in all art communities in the neighbourhood of Florence, because the "governors of the Baptistery" arranged a competition among sculptors to find the most worthy. Each competitor was given a quantity of brass, and he was required to make a relief-panel of a certain size, showing the story of Abraham about to sacrifice Isaac.

Ghiberti's panel was much the best of the various competitors; the next best was Brunelleschi's. For quite a time in the history of Italian sculptors we come across the phrase, "he also competed for the Baptistery doors."

We need only look at a photograph of Niccola's reliefs at Pisa and a photograph of Ghiberti's doors to see at once how Italian art had developed. These bronze reliefs are, as reliefs, wonderful, for within the limits of this style of work the sculptor shows perspective, and makes his more distant figures in fainter relief than the rest. And the composition is very fine—plenty of space and no crowding to the front of bulging-out figures.

There is a cast of the second of these doors in the South Kensington Museum, and when we see the ten panel pictures, and realise that they were done in bronze, we are not surprised that Michael Angelo said they were worthy to be the gates of Paradise.

Ghiberti spent the best part of thirty years on the Baptistery doors. There is a lesson in work and patience for us! This sculptor lived from 1378 to 1455, and he got through an extraordinary amount of work, mostly in bronze. He will always be famous because of the Baptistery doors.

A SIMPLE LIFE THAT WAS CROWDED WITH GLORIOUS WORK

This achievement overshadows his other labours, like the statues of St. John Baptist and St. Matthew in the church of San Michele, the font of the Baptistery at Siena, where he worked with Donatello and Jacopo della Quercia, and the labour on the Duomo, during which he quarrelled with his rival architect-sculptor, Brunelleschi, a fine, stirring quarrel that roused all Florence. Several of his minor bronzes can be seen in the Bargello, the national museum in the old town.

When we look at the great bronze doors, we know without being told that Ghiberti lived in an age of painters. The whole feeling of the panels is pictorial. Perhaps this is why he had such an effect on the later painters of Florence; his work seemed to be an undying inspiration.

Another sculptor, a contemporary of the master of the bronze doors, a man who also influenced painting very much was Donatello. He lived from 1386 to 1466, and his life was like Ghiberti's in this, that it was crowded with glorious work. Donatello had a very lovable nature, with a genius for friendship, and, though his work set him above princes in worth, he retained to the end the gift of being easily pleased, and a love of simplicity in his daily life.

There is a pretty story of Donatello and the great man Cosimo Medici. The sculptor had a trick of wearing comfortable, shabby clothes; and, Cosimo, seeing him one day more comfortable and shabby than usual, sent him an outfit—a rich scarlet cloak, a cap, and a doublet. Donatello obligingly wore them for one day, and then sent them back and begged to be excused. Cosimo's son gave Donatello a fine country house; but the servants and grandeur troubled his simple soul, and again he begged to be excused, and returned to his own dingy abode.

THE LASTING INFLUENCE OF DONATELLO ON THE SCULPTURE OF EUROPE

This man of many faithful friends, this warm, loving-hearted Florentine, was of the texture of granite where his work was concerned. He is the greatest figure we have met so far in the Italian company. The chief note of his work was a strong and healthy realism. His sculpture was like a tonic to the painters of his day; he cured them of the sentimentalism encouraged by the Fra Angelico school. Donatello's influence lasted in Europe for centuries, and the spirit of his work is still alive. His power over succeeding generations was greater than Michael Angelo's because his work was saner.

There were several kinds of sculpture in which Donatello's genius found expression, from the delicate, low reliefs like the St. Cecilia and the little St. John, to the magnificent equestrian monument to the condottiere Gattamelata. The St. Cecilia, which some critics are beginning to think is not by Donatello, is well known, as there is a plaster cast in almost every school. How many of us have tried, and despaired in trying, to render the exceeding charm and strength of this relief!

THE BEAUTIFUL GALLERY OF CHILDREN AGAINST A BACKGROUND OF GOLD

In between these two extremes of style come a great number of statues, monuments, carvings of all sorts. When Donatello was only nineteen he began his public work. To his early years belong the Four Evangelists, Abraham and Isaac, and the famous St. George, which is in the Bargello. This is supposed to be Donatello's finest statue. A little later he carved the marble David, now in the National Museum, where the little bronze David is also treasured.

Donatello made a number of wonderful tombs. Among the most famous are the pope's tomb in the Baptistery Florence; the cardinal's tomb at Naples; and a huge monument for the Medicis in the San Lorenzo chapel. In this work he was helped by Michelozzi, one of his pupils. He seemed to spend years doing nothing but carving magnificent tombs. A little later—a happy change—he made the lovely marble relief on the front of the singing gallery in the cathedral. Here he carved a band of children against a gold background, one of the most charming pieces of fifteenth-century sculpture.

The most famous of Donatello's bronzes, the Judith and Holofernes group, was not his best. The work owed its renown, not to artistic merit, but to the bearing of the subject on the troubled history of the day.

This unwearying artist went from one kind of sculpture to another, and from one place to another. He found time to do small pieces of work like mirror cases and terracotta busts, and small decorative panels for the homes of his friends and patrons. He carved some fine statues in wood, like the Magdalen in the Baptistery at Florence and the St. John in a monk's church in Venice. Some of his finest work was done in Padua, including a fine crucifix and several reliefs, most of the subjects being taken from the Gospels.

PUPILS OF DONATELLO WHO MADE FAMOUS NAMES IN SCULPTURE

The great effect which Donatello's work had on his own and succeeding generations was to make sculptors and painters ashamed of any affectation. He tried to make his work as lifelike and natural as possible, and was the first sculptor of Italy to have such an ideal.

He had a number of pupils always at work in his studio. Those whose names have been most remembered by students of art are Nanni di Banco, Desiderio da Settignano, Michelozzo, and Verrocchio. The last three are the most important. Verrocchio (1435–1488) was both painter and sculptor, and worked in gold, bronze, and marble. He made some interesting statues of children and some groups of a religious character. One isolated grand work stands out among his more mediocre attainments, a statue in bronze of Colleoni at Venice. This has been called the finest equestrian figure of the Renaissance.

Desiderio (1428–1464) was a worthy pupil of the great Donatello, and he founded a kind of minor school of sculpture

whose influence was long felt. He and his followers worked chiefly in marble, and were most praiseworthy in their generation for carving little tombs, reliefs, portraits, sweet-faced Madonnas—the kind of sculpture to be found in every fifteenth-century church of any note in Italy; the kind of sculpture we are inclined to take for granted and pass by, because it bears not the superscription of a great name.

The most important of Desiderio's followers were Mino da Fiesole, Antonio Rossellino, and Benedetto da Majano. Rossellino made a most lovely relief called the Nativity, which is in a church in Naples; and there also is Da Majano's Nativity. About this time Andrea and Jacopo Sansovino were working. Andrea's best-known work is a very fine tomb in a church in Rome; Jacopo's a fine Bacchus in the Florence Museum.

Siena produced, among many minor sculptors and artists, the fine sculptor called Jacopo della Quercia. He lived from 1371 to 1438; his work was strong and realistic, much thought of by the artists and sculptors of his day.

THE HAPPY FOUNTAIN IN THE GREAT SQUARE OF SIENA

One of Della Quercia's earliest works was a set of sculptures for the Happy Fountain in the chief place in Siena. The original adornment of the fountain had been a statue of Venus dug up in the neighbourhood of Siena, probably a relic of Graeco-Roman art. The Sienese presently fell on evil days, and it occurred to them that their heathen goddess might have something to do with their disasters. So they took the happy goddess from the Happy Fountain, and adroitly buried her in the territory of Florence, their chief enemy. When peaceful days came again, the men in power in Siena asked Jacopo della Quercia for a new adornment. The sculptor, taking a lesson from the past, made the Happy Fountain most thoroughly Christian. He sculptured for it a number of beautiful statuettes, including figures to represent the Christian virtues.

For the rest of his life, in tribute to the fine work he had put into this sculpture, Jacopo was known as Jacopo della Fonte.

Another early work by him is the lovely tomb of Ilaria del Carretto, now in Lucca Cathedral. Later he made some fine reliefs for the doors of the church of San Petronio, at Bologna. The day came when Jacopo was sorry he had undertaken this commission, for the folk of Siena and Bologna quarrelled hard about him. In the end he was threatened by the authorities of his native town with a fine of one hundred gold florins if he did not return at once. Jacopo hastened to return, being too poor, like most artists, to pay such an enormous sum; and was at once threatened with another fine of one hundred golden florins if he should leave Siena without permission, and until a certain bronze relief was done for the cathedral.

Enviable days, and enviable people, to care so much about a piece of sculpture as to quarrel about it!

WHOLE FAMILIES WHO WON FAME IN THE REALMS OF ART

Most of Jacopo's time was spent in between Siena and Bologna, making statues, reliefs, and monuments. Among those sculptures are a number of reliefs for the inside of the door of the church at Bologna. These are unequal in merit, but in part show the sculptor at his best. The subjects are taken from the Old Testament.

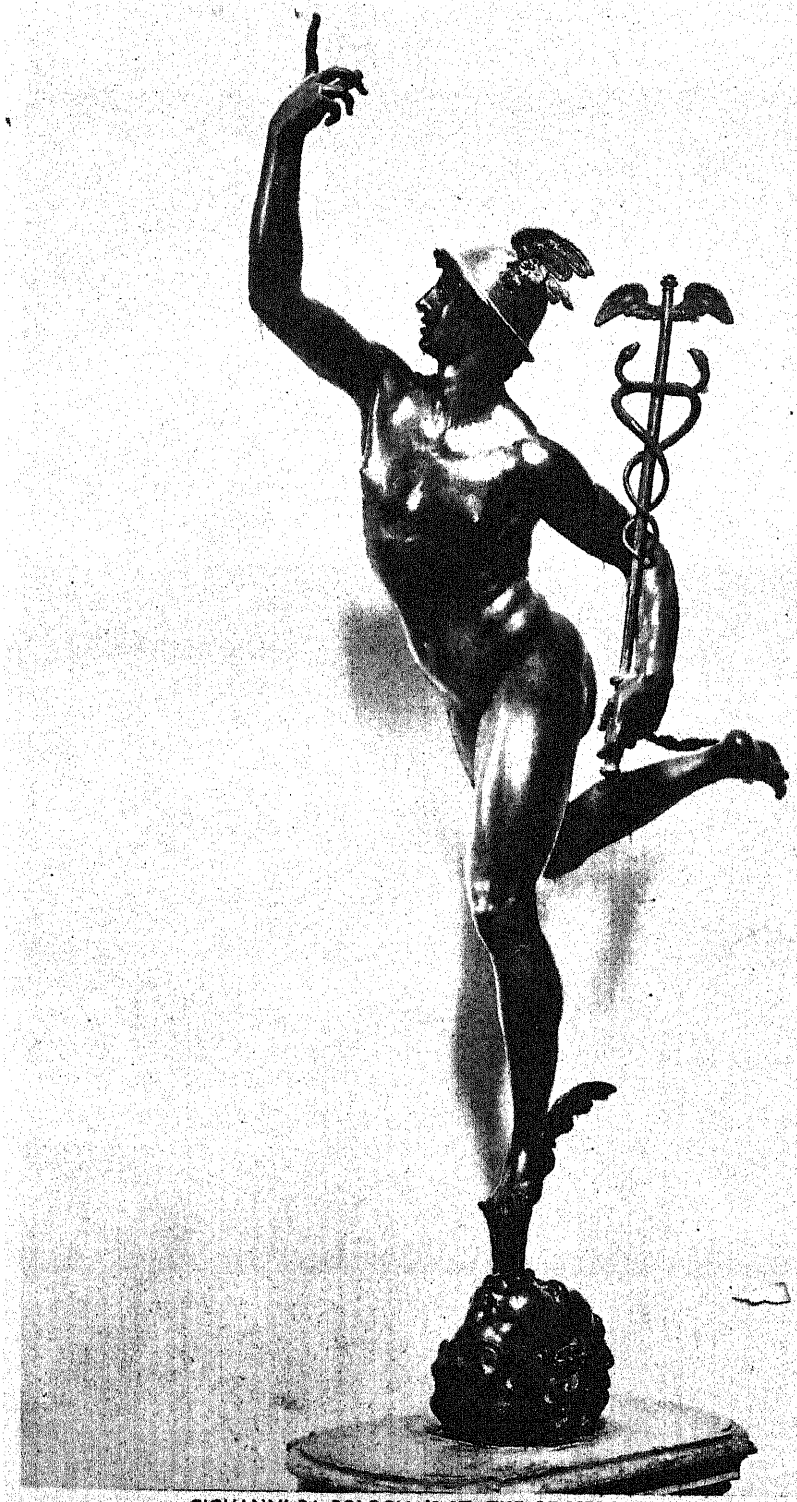
In the South Kensington Museum are several pieces by Jacopo, including two terra-cotta reliefs of the Holy Mother and Babe.

One of the most interesting features of fifteenth-century Florentine art was the existence of whole familes who worked together as painters or sculptors. It often happened, as in the case of the Rossellini, that one member, Antonio, was worthier of fame than the rest. Another artist family was the Majani, of whom Benedetto was the chief. The most remarkable family in many ways were the Della Robbias: and the work begun by the first, Luca della Robbia, was carried on by his nephew and his sons.

HOW DELLA ROBBIA'S WORK DIFFERED FROM THE WORK OF DONATELLO

The Della Robbia sculpture was of a distinct kind, and formed a tradition of its own which lived in Italy a long time. Luca began, like most sculptors, working at small heads and portraits and reliefs. His most important work, before he branched off on to the true Della Robbia craft, was the carving in marble of the organ gallery front in the Cathedral, which was opposite the singing gallery sculptured by Donatello. In these competitive works we can see the essential difference between Donatello and Luca; Donatello chiselled strength and vigour into his cherubs, the other a harmonious grace which was the keynote of his work.

SCULPTURES OF ITALY'S GOLDEN AGE



GIOVANNI DA BOLOGNA'S STATUE OF MERCURY TAKING FLIGHT

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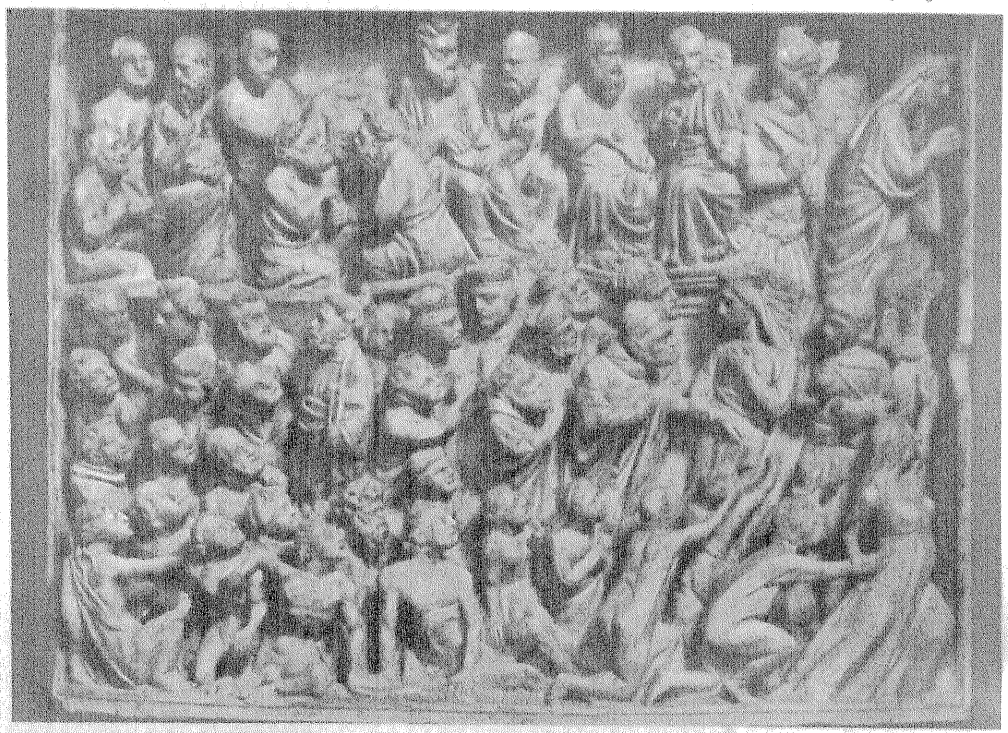
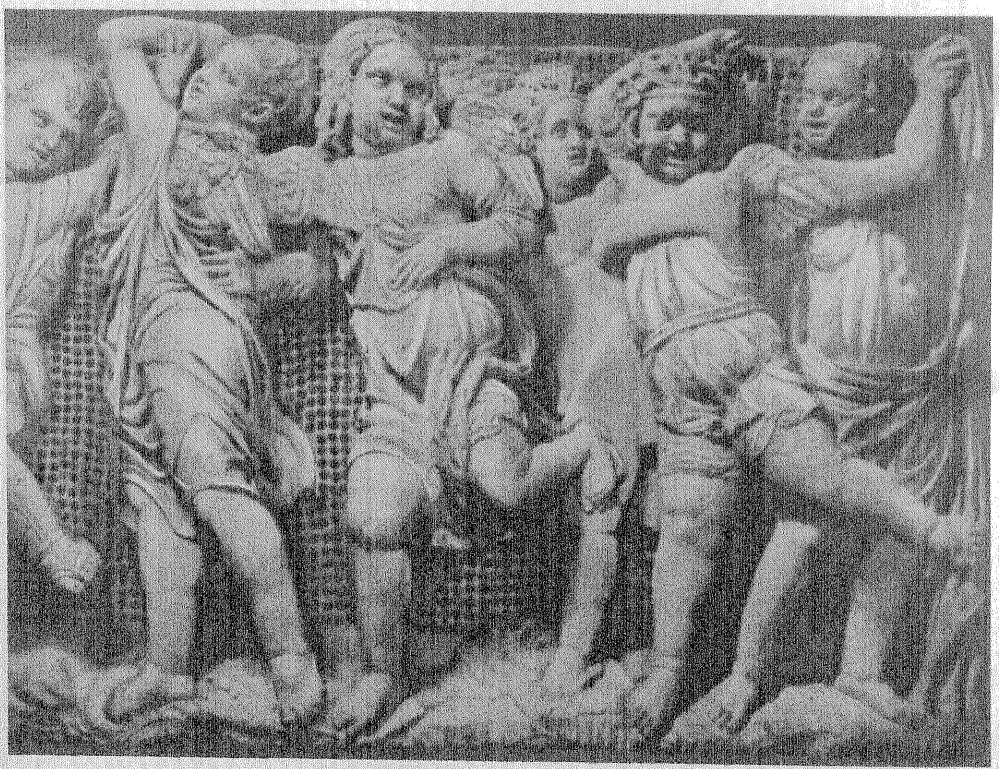
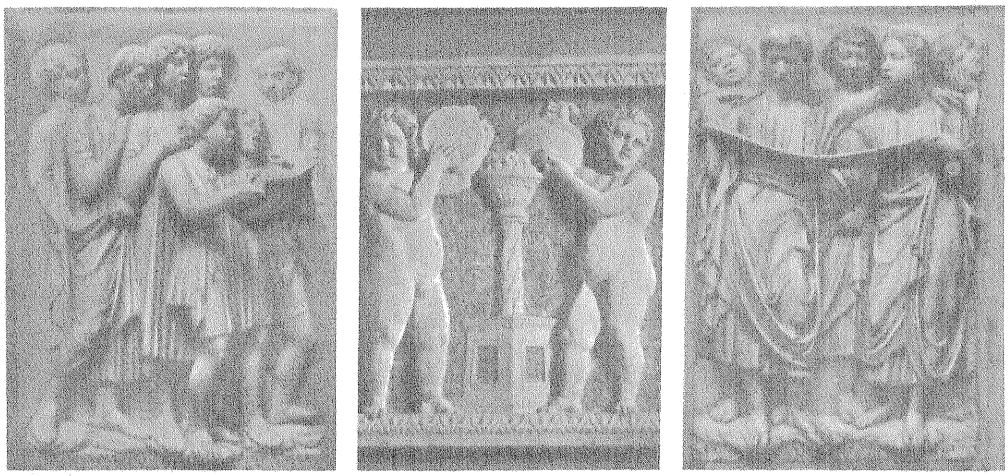


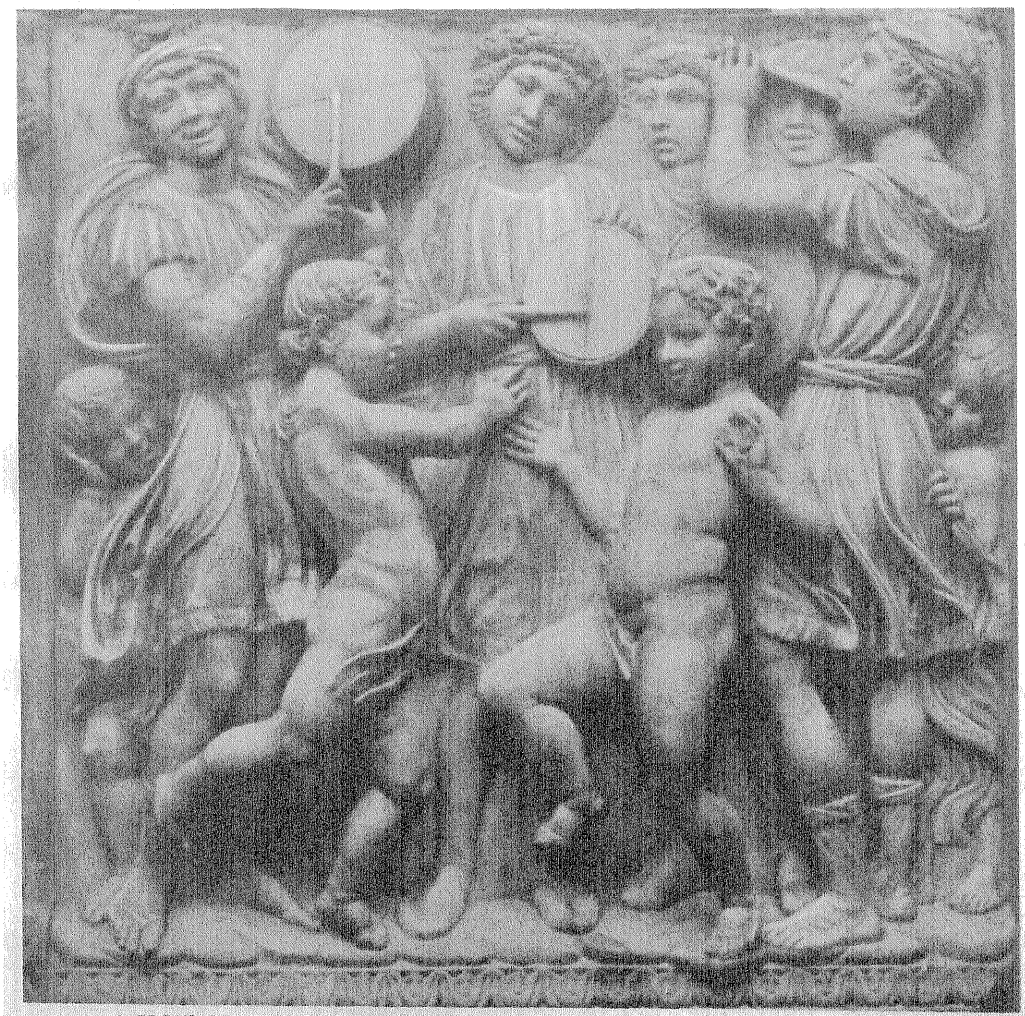
A PANEL OF THE PULPIT AT PISA, BY GIOVANNI PISANO



A DONATELLO GROUP OF HAPPY CHILDREN

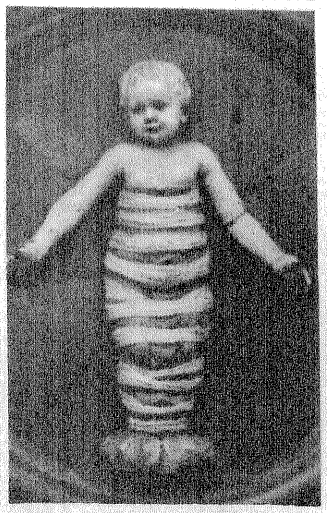


FIGURES FROM THE SINGING GALLERIES OF LUCA DELLA ROBBIA AND DONATELLO

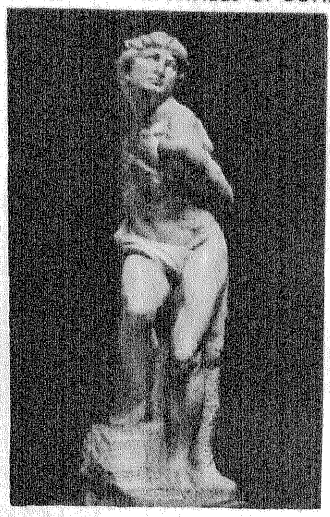


A GROUP OF VIVID CHORISTERS FROM DELLA ROBBIA'S FAMOUS SINGING GALLERY

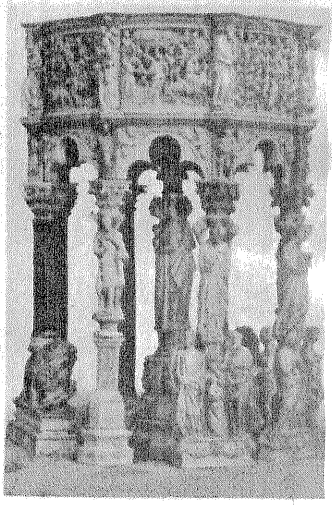
THE WONDERFUL LITTLE FIGURES IN THE PANELS OF DONATELLO'S SINGING GALLERY



A LITTLE CHILD, BY ANDREA DELLA ROBBIA



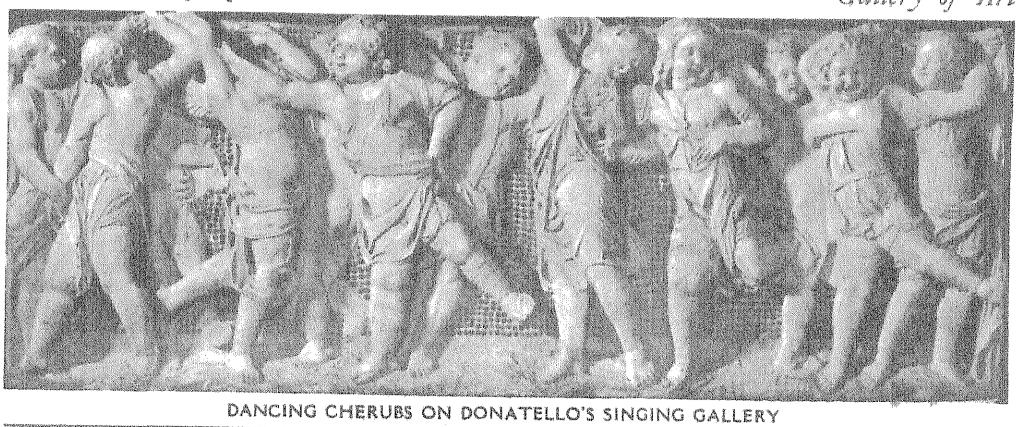
THE PRISONER, BY MICHAEL ANGELO



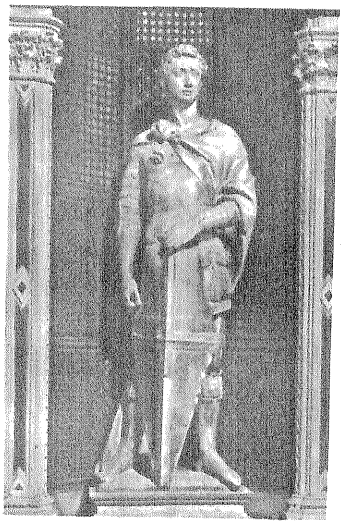
A BEAUTIFUL PULPIT, BY GIOVANNI PISANO

THE VISITATION, BY ANDREA DELLA ROBBIA

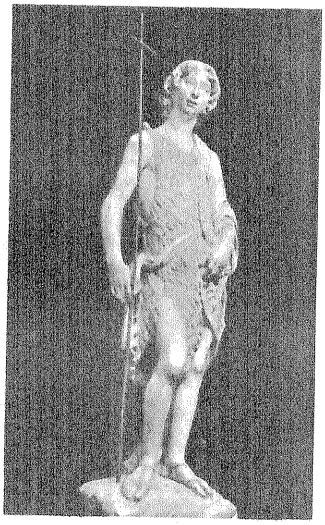
A COLOURED TERRA-COTTA, BY GIOVANNI DELLA ROBBIA



DANCING CHERUBS ON DONATELLO'S SINGING GALLERY



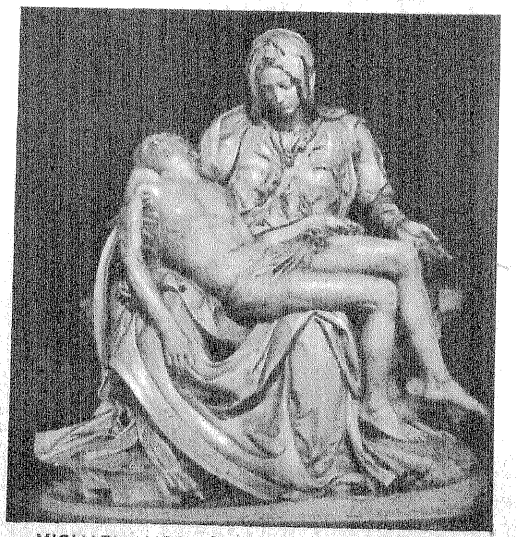
DONATELLO'S SAINT GEORGE



JOHN THE BAPTIST, BY BENEDETTO DA MAJANO

MICHAEL ANGELO'S HUGE STATUE OF MOSES

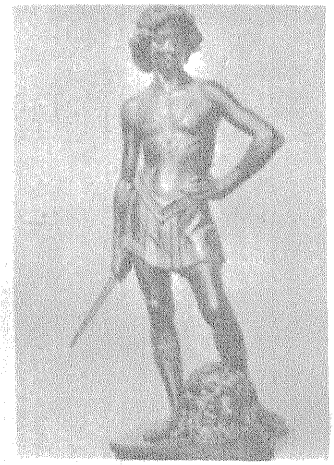
THE MADONNA WITH CHRIST AND ST. JOHN BY MICHAEL ANGELO



MICHAEL ANGELO'S PATHETIC GROUP IN ST. PETER'S

AEOLUS, BY GIOVANNI BOLOGNA

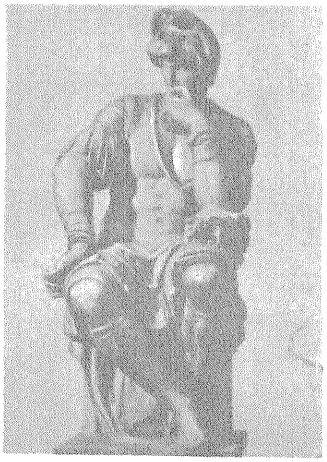
DONATELLO'S DAVID



VERROCCHIO'S DAVID

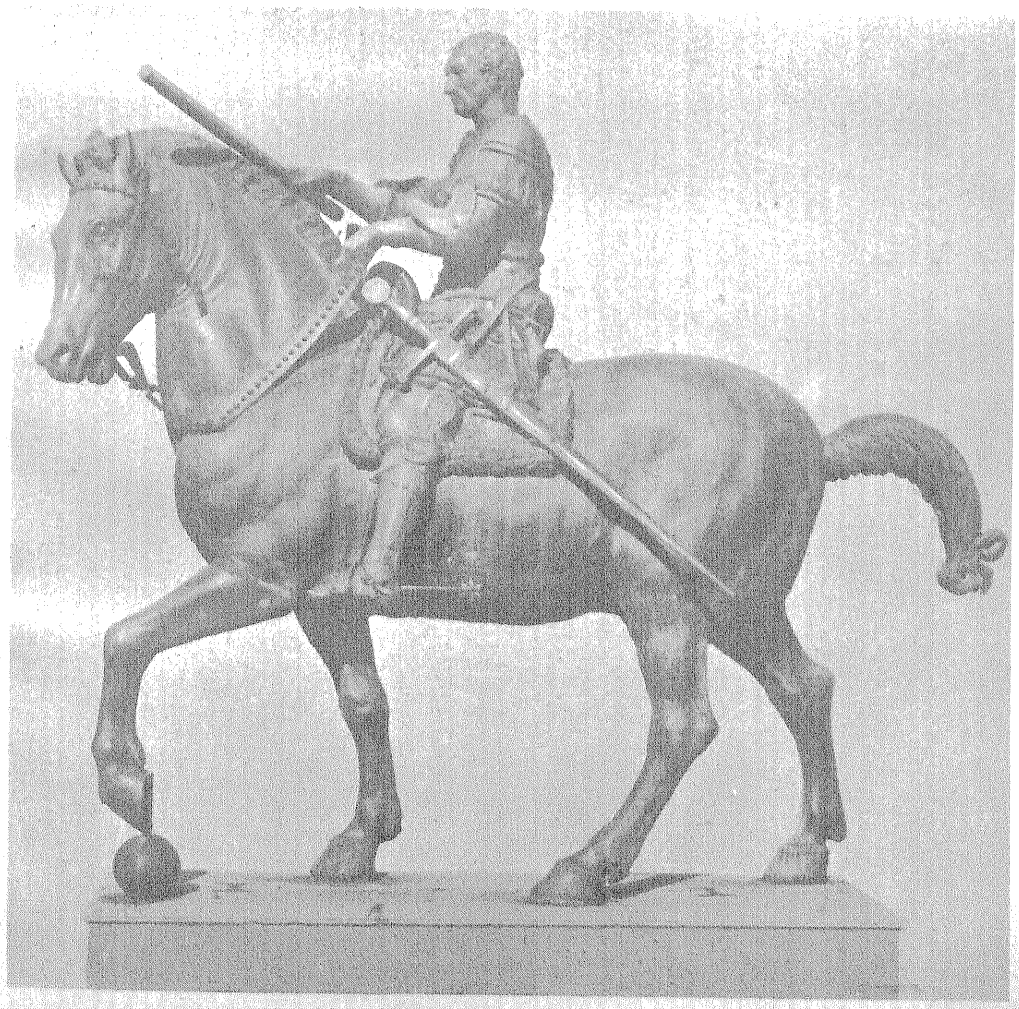
THE FAMOUS COLLEONI STATUE IN VENICE, BY VERROCCHIO

A YOUNG CHILD'S HEAD. BY DONATELLO

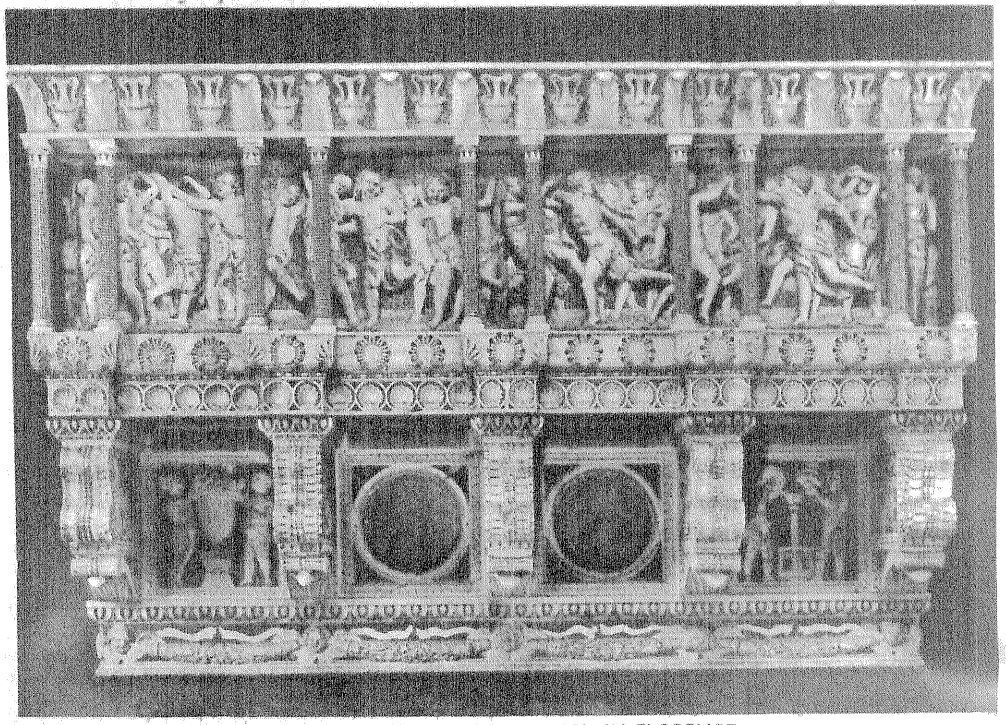


MICHAEL ANGELO'S LORENZO MEDICI

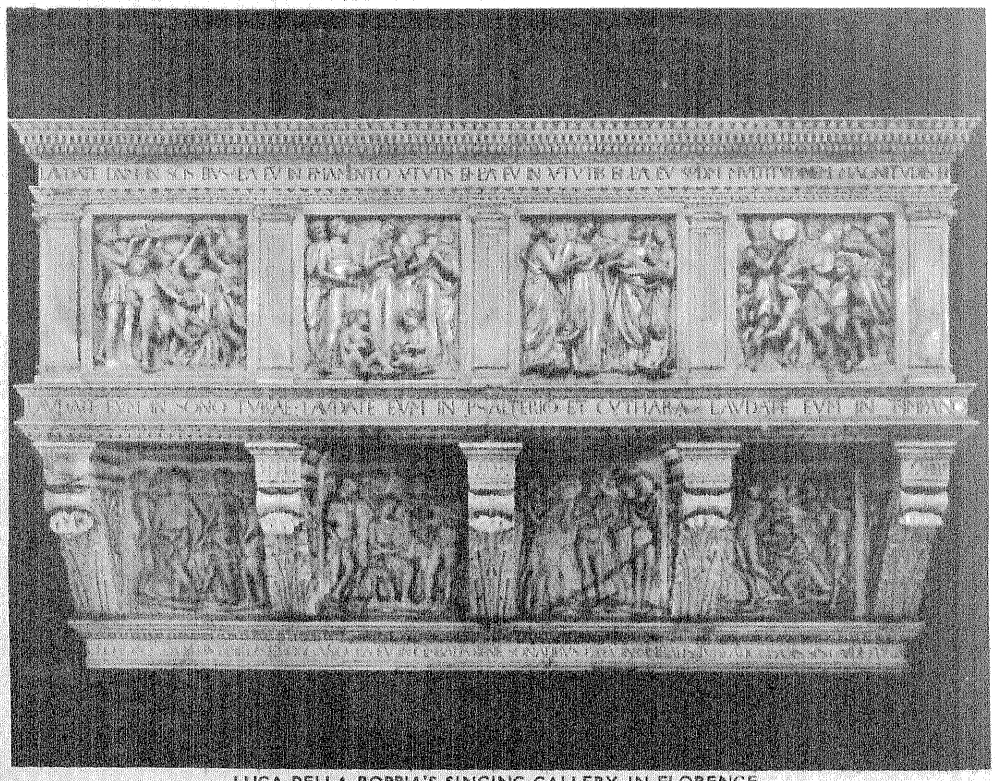
AN ANGEL. BY LUCA DELLA ROBBIA



THE GATTAMELATA STATUE AT PADUA. BY DONATELLO



DONATELLO'S SINGING GALLERY IN FLORENCE



LUCA DELLA ROBBIA'S SINGING GALLERY IN FLORENCE

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Next came some commissions for the Campanile—five reliefs, and two altars, only one of which was finished, and the work on the bronze gates of the sacristy. Then Luca, by a happy inspiration, gave up marble sculpture and devoted himself to that kind of glazed terracotta work which made him famous throughout Europe. There are many stories told concerning his invention, and it is difficult to say how much is hearsay and gossip and how much is truth. The fact remains that Luca succeeded in covering his clay models with a kind of enamel that not only gave them colour, but protected them from atmospheric injury.

In this painted sculpture Luca's peculiar and harmonious compositions found a perfect medium. His art was never lofty and profound; it was concerned with the happy day to day story of the gospels, angels and madonnas who seem a little nearer to us than the great conceptions of more austere sculptors.

We have an excellent opportunity of studying the Della Robbia work in the South Kensington Museum, where about fifty specimens of coloured terracottas by members of the family are preserved.

THE BEAUTIFUL TERRACOTTAS THE DELLA ROBBIAS MADE

By Luca della Robbia we have, among other things, twelve fine medallions telling the tale of the months, done in monochrome; by Andrea, Luca's nephew and immediate helper, we have a beautiful enamel of the Madonna and Child. On another huge medallion, eleven feet in diameter, is painted the arms of a king of Anjou.

Another very lovely circular enamel of the Madonna and Child is in the Cluny Museum in Paris. A relief of this same subject, which Luca was never weary of showing, is in the convent of San Marco, in Florence. But this is only one of many specimens of the art of the Della Robbias in their native city. The Florentines took a delight in introducing this coloured ornament into the churches and convent chapels. Indeed, Luca was given commissions from all over Europe.

A craft so delightful and lending itself so much to decorative ornament, was sure to find imitators. There were followers of the Della Robbia, but they lacked the giftedness of the family and little was done of any moment.

There is something in the story of Italian sculpture that reminds us of a procession, and music. All kinds of figures pass by; there is a sweet, tinkling sound of bells and a flute—that is Luca della Robbia; youth marches along, with banners flying and drums beating—that is Donatello; ghosts of the past slip by, and dear figures out of Bible story. And always we feel there is something more coming; we look along the swaying lines and see presently that last fine figure, hear that last great music, and we say, "Hail, Michael Angelo!"

THE COLOSSAL ACHIEVEMENTS OF THE MASTER ARTIST

There was something of a terrible quality in this man's work. During his lifetime Rome was the chief centre of his labours. Echoes of the sculpture and paintings done there sounded all over Italy, and made thoughtful men, patrons of art, pass in review the statuary they had considered greatest in the land.

Michael Angelo's sculpture was different from the rest of Italian sculpture in three ways. He saw men as giants; he saw them as solitary, mournful giants, weighed down by Fate; and he saw these giants as creatures whose mere bodies could give the most magnificent lines Nature has created. All the work of his prime shows this threefold characteristic. His work was, in the literal sense of the word, extraordinary, sometimes unnatural. It was as ceaseless seventy-miles-an-hour gales; or an organ always sounding the full diapason; or a father who never ceased by night or day lamenting those he had lost.

We know that, most mercifully, life and nature do not exist on this exalted plane. If a March storm makes havoc, we may be sure that the day is coming when we shall spy the first daisy, and smile.

THE SHAPES OF THE HUMAN FORM THAT MICHAEL ANGELO FASHIONED IN STONE

One cannot honestly imagine Michael Angelo seeing the first daisy, or any daisy. But he might have seen someone dart and stoop to pick one; and the muscles suddenly set into play thereby would have filled him with a kind of frenzy, a passion for the twisted lovely shapes of the human body at that moment.

He would have gone home in a fever of impatience to fling into stone those shapes. And when he had done so, the figure carved would have become mysteriously sorrowful and fateful; it would have become a symbol of a magnificent, huge person, who ought to be lifting the world

about, stooping to the ground for a trifle. Whereas, as we know, the man was merely picking the first daisy to show his baby girl at home.

As we have already said, Donatello had a better influence on posterity than Michael Angelo because he was saner. When a sculptor saw a Donatello statue, something fine and strong and natural in it made him hate himself for any little mannerisms. When a sculptor saw a Michael Angelo statue or painting—which was really statuary in line—he was so lost in admiration of its unearthly twisted grandeur that he went straightway and got a model to contort himself into a position that he could not maintain five minutes without fainting, and then the sculptor began to model his figure on those lines. The result was a weak study in anatomy, filled with the most copyable of Michael Angelo's mannerisms.

THE WONDERFUL GENIUS WHO STANDS APART FROM ALL OTHER MEN IN ART

And this emotion, this twisted grandeur which the poor imitator struggled so hard to express, was achieved by Michael Angelo because he could not help it; he thought that way, felt that way, had just such visions. He abhorred the very idea of imitating anything himself. He simply hewed marble according to his own ideas. We see, now, that he was a great genius, but a bad master. Instead of founding a school, he founded a company of imitators of his mannerisms. He stands apart; was unique, and should not be taken by everyday people as a model.

We know that part of Michael Angelo's time was given, under protest, to making wall pictures at the Pope's command. His earliest relief dealt with a classical story—the battle of Hercules and the centaurs. When he was only eighteen he hewed a marble Hercules about seven and a half feet high.

A little later he was ordered to Rome, and one of the first things he carved was a Pietà—a figure of Mary with the dead Christ—which is now above the altar in one of the chapels of St. Peter's. A Madonna and Child, carved by him, is now at Bruges.

The next great work was the immortal David carved by this genius out of a colossal block of marble with nothing to guide him save a tiny wax model he had made. The David showed what Michael Angelo could do; this huge, lanky, undeveloped lad, with the head of a Greek god, filled Florence with amazement and is now one of her chief treasures.

The most wonderful and memorable work, after the David, are the tombs for Lorenzo and Giuliano Medici. There is a lofty grandeur in this work. The figure of Lorenzo bears no resemblance to the Medici prince; it is a great being meditating profoundly. Both the tombs are ornamented by recumbent figures of Day and Night, and these, again, are the subjects of powerful thought.

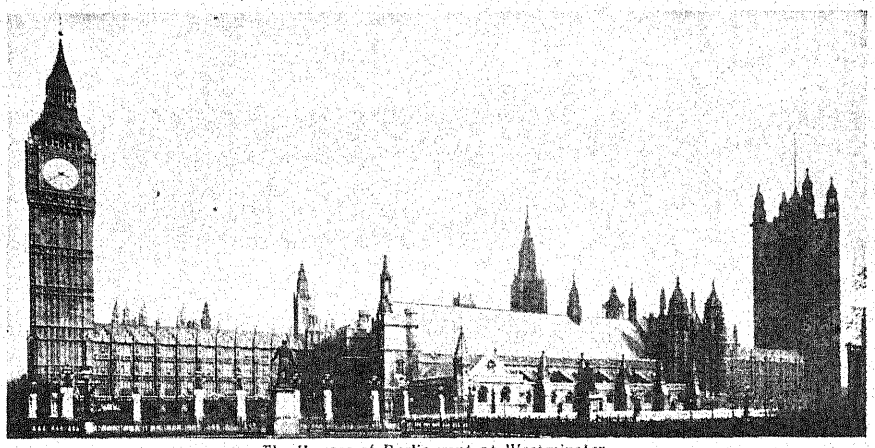
THE MIGHTY FIGURE OF MOSES FILLED WITH THE ANGER OF GOD

A magnificent tomb for one of the popes was designed by Michael Angelo, but the plan fell through owing to the vacillations of the patron. Later on the sculptor returned to a modified idea, and directed the work. The only sculpture for the tomb which he actually finished is the mighty figure of Moses. It is now in the church of St. Peter in Vinculis, in Rome. Among the works for this tomb, which he left unfinished, are two figures of slaves, and these alone, twisted, savage forms, show his peculiar genius. They are now in the Louvre. It was these works—the Moses, quivering with God's anger, the David, the painting of the Last Judgment in the Sistine Chapel, and the unfinished slaves—which evoked a kind of stupefaction among the artists who saw them. Sculpture and frescoes taken together, Michael Angelo was, in himself, one of art's revolutions. He was the last great Florentine, the last great sculptor of Italy.

THE MEN WITH WHOM CLEVERNESS TOOK THE PLACE OF GENIUS

After him came a number of men in whose work cleverness took the place of genius. There were also a few artists gifted in a smaller way, like Cellini, of whom we shall be thinking later, as a fine craftsman, and Giovanni Bologna, a Frenchman by birth who worked in Italy. Giovanni's best figure is the Mercury taking flight, in the Florence Museum.

A hundred years after Michael Angelo a sculptor was at work, Bernini, whom the people hailed as another Michael Angelo. This judgment shows how far Italy was from her prime. Bernini was born in Naples and made a number of statues, all full of gestures and tricks, and lacking the essential poise of great sculpture. He was the chief artistic influence in Rome in his day, but it was a Rome which had forgotten her greatness.



The Houses of Parliament at Westminster

PARLIAMENT AND HOW IT WORKS

IN all countries and in all ages men have been glad to submit to the rule of the best of their kind.

The savage tribe found in some wise and doughty warrior a commander who could lead them in war and guide them in peace. Still today, in the most advanced civilisations, men instinctively look for leadership, and it is rarely that in time of trial a nation fails to find some man of distinction who seems to the great majority to embody the nation's spirit. As the cricket club finds its captain, so the tribe or the nation finds its chieftain.

The early English called their leaders kings, but our own kings have ceased to be law-givers or leaders in battle. They have become by a long process of change the presidents of a free people. The King has become a personal embodiment of the State, who exercises power through a Government chosen by the people and responsible to the Council of the Nation, the Parliament elected by the people.

Nominally the King still retains his ancient powers of making laws, appointing ministers, conferring honours, or even of declaring war; but in practice the King is the servant of the nation, and always assents to laws passed by both Houses of Parliament.

The events which have led to this great change in the position of the British King represent a continuous development of the conception of democratic rule, the rule of the people for the people by the people. The King acts as head of our democratic State, and his acts are thus the acts of the people themselves, expressing their desires through Parliament.

The King does not even preside over the Council of the nation. This change came about in the reign of George the First, the German King of England who could not speak English.

The nation is governed under a complicated system of law and custom which we call the British Constitution. In respect of many important matters the Constitution is unwritten, resting not on written laws, but on custom. Many countries have a written Constitution which sets out clearly what can and cannot be done by the governing institutions; but the advantage of an unwritten Constitution is that it can be changed to suit new needs.

The process by which we citizens chose our actual rulers in Great Britain is familiar to us all. The country is divided into sections of town and country which we call Constituencies, and each of these

returns one or more representatives whom we call Members of Parliament. By the same method of secret voting as in the case of a Town Council, men and women make their choice. Every man who has reached 21, and has lived in the same place for at least six months, is placed on the register of voters. Every woman who has reached the age of 30 and is entitled to be registered as a local government elector, or who is married to a voter entitled to be so registered, has the right to vote. The number of members returned to Parliament is 615, England and Wales sending 528, Scotland 74, and Northern Ireland 13.

THE TWO GROUPS OF PARLIAMENT THAT GOVERN THE NATION

Members of Parliament receive £400 a year, which enables poor men to sit in the House of Commons.

The House of Commons is frequently re-elected. Under the law it must be re-elected every five years, but at any time the King, on the advice of his Ministers, may dissolve Parliament and order a new election.

Parliament, as we have it today, is divided into two groups. The first is the House of Lords, consisting of all the English peers sitting together with a certain number of peers representing the peerages of Scotland and Ireland, and the Bishops of the Church of England. The second is the House of Commons, consisting of the Members of Parliament who are actually elected representatives of the people themselves.

Parliament has developed through long centuries of change. The early Parliaments were really meetings of the King's Councillors, together with the judges and bishops and some of the earls and barons. The City Burgesses and Knights of the Shire, who were the first representatives of the nation, were summoned to appear before Parliament, and did so humbly with their chief spokesman, who came to be called the Speaker, at their head.

THE GREAT RIGHT WHICH THE COMMONS FOUGHT FOR AND WON

In time this National Council passed through remarkable changes. The peers and bishops concentrated in the House of Lords. The representatives of the people deliberated by themselves and formed the House of Commons. The judges ceased to be Lords of Parliament, although still we have the organic connection in the fact that in the House of Lords remains the highest Law Court of Appeal, and the Law Lords hold life peerages. One of the greatest changes which have occurred in the development of Parliament was that the Commons fought for, and won the sole right of voting supplies—which means the right of raising money needed for the purposes of government.

The two Houses of Parliament, Lords and Commons, meet in great rooms at Westminster which lie in the same straight line. They are connected by a long corridor, in the middle of which is a big lobby. This long corridor is in a straight line with the centre of the House of Lords on one side, and the centre of the House of Commons on the other. *At one end of this line is the King's Throne in the House of Lords and at the other end is the Speaker's Chair in the House of Commons.*

A General Election having taken place the newly-elected members assemble in the House of Commons, and take the oath of allegiance. The formal opening of Parliament then takes place. This is usually performed by the King himself who goes to the House of Lords for the purpose.

THE SPEECH FROM THE THRONE WHEN THE KING OPENS PARLIAMENT

In declaring Parliament open the constitutional usage is for the King to make a speech in which the policy and intentions of the Government are briefly stated. This is called the King's Speech. But it is not the King's Speech at all, but a statement carefully written by the King's ministers to be read by the King. Here is the greater part of the speech with which King George opened the new session of Parliament in February, 1917.

My Lords, and Gentlemen,

For the third time in succession I summon you to your deliberations in the midst of war.

Certain overtures, of which you are aware, have been made by the enemy with a view to the opening of peace negotiations. Their tenor, however, indicated no possible basis for peace.

My people throughout the Empire and my faithful and heroic Allies remain steadfastly and unanimously resolved to secure the just demands for reparation and restitution in respect of the past and the guarantees for the future which we regard as essential to the progress of civilisation. In response to an invitation from the President of the United States of America, we have outlined, so far as can be done at present, the general objects necessarily implied by these aims . . .

Gentlemen of the House of Commons,

You will be asked to make the necessary provision for the effective prosecution of the war.

My Lords, and Gentlemen,

The accomplishment of the task to which I have set my hand will entail unsparing demands upon the energies and resources of all my subjects. I am assured, however, that my people will respond to every call necessary for the success of our cause with the same indomitable ardour and devotion that have filled me with pride and gratitude since the war began.

If it had been a time of peace instead of war, the speech would have referred to proposed new laws. It is important to notice that the King opens his speech by addressing *My Lords, and Gentlemen,* but that in the middle of it he breaks off and addresses the *Gentlemen of the House of Commons* specially on finance. That is because the House of Commons has the *sole constitutional right to deal with money matters.*

The members of the House of Commons are summoned to the House of Lords to hear the King make his speech, and they go in procession down the long corridor headed by their Speaker.

THE THREE FUNCTIONS OF THE HOUSE OF COMMONS

Parliament thus being opened, debates begin in both Houses, and the first thing done is to discuss the King's Speech, which gives an opportunity to raise any question. For example, if a Member thinks the Government is not attending to a certain duty he can at once complain that it is not mentioned in the King's Speech.

The House of Commons has three distinct functions. It decides what money shall be raised and how it shall be spent; it makes new laws or amends old ones; it controls the administration of law.

As to the very important matter of spending money and raising taxes, the Commons, for the purpose of guarding the taxpayer's interests, resolves itself for a long part of the session into what is called Committee of Supply, and examines in detail the money requirements of every department of the Government, whether it be the Army, or the Navy, or the Educational Department, or the National Gallery, or the Board of Agriculture. Every sum of money required has to be voted, and thus an opportunity is given to criticise unnecessary expenditure or discuss grievances. This is a very important part of the work of the House.

As to raising money, the Minister of Finance, who is called the Chancellor of the Exchequer, produces each year a statement showing what the Government estimates it will have to spend, and what taxes it proposes to levy to meet the expenses. This statement is called the Budget, and the Chancellor's proposals are embodied in an Act of Parliament called the Finance Act, which has to be passed into law by the Commons, the House of Lords having no power to refuse to pass it.

THE RIGHT OF THE HOUSE OF LORDS TO REJECT A COMMONS BILL

As to making new laws, or amending old ones, nearly all important measures are first introduced into the Commons, and then introduced into the Lords. When both Houses have passed a measure, the King formally gives his Assent, and an Act of Parliament is made. The peers have the right to refuse to pass a measure passed by the House of Commons, but only a limited right. This limitation of the power of the Lords was made in 1911, when it was enacted that if a Public Bill was passed by the House of Commons in three successive sessions, it should receive the Royal Assent even if the House of Lords rejected it.

When a new law is introduced into Parliament it is called a Bill, and the Bill does not become an Act until it receives the Royal Assent. Any private member can introduce a Bill, and scores of measures are thus introduced, but Governments take up so much of the time of Parliament that, unless a private member can get the Government to back his Bill, and especially to give him time, he has little chance of getting it through. In twenty years few private members have succeeded in making new Acts of Parliament.

HOW A BILL BECOMES AN ACT OF PARLIAMENT

Even the Government itself often finds it difficult enough to pass a Bill through Parliament. The procedure is long and tedious. First the Bill is presented to the House and formally given a First Reading. Then comes the really important battle on the principle of the Bill, the debate on the Second Reading. The Minister in charge of the Bill then makes a speech explaining it, a debate follows—which may extend in the case of an important Bill to several days—and there is then a division. If the Bill secures a majority of votes it is said to have passed the Second Reading, and it is then referred to a committee, which may be

either a committee of the whole House, a grand committee of a section of the House, or a special committee formed for the purpose.

In Committee the Bill is examined clause by clause and line by line, and it sometimes takes weeks to hammer it out. The Bill is almost sure to be altered, sometimes a little, and sometimes a great deal. Having thus been amended, the Bill is reported to the House by the Committee's Chairman, and then follows another stage of examination called the Report Stage. This consists of the detailed survey of the entire Bill by the whole House. The Bill finally comes up for Third Reading, when, if it obtains a majority, it is passed as far as the House of Commons is concerned. Then it goes to the Lords, who subject it to a somewhat similar process, and if it passes the Lords, the King, by his formal Assent, makes it an Act of Parliament.

THE TIME-WASTING METHOD OF VOTING THAT WILL HAVE TO BE ALTERED

Voting in the House of Commons is a long and elaborate business. The members actually divide by trooping into lobbies: *Ayes* to the right, *Noes* to the left. In the lobbies they pass through narrow gangways, where they are counted like sheep by the clerks. This wastes a lot of time, and ought to be altered, for sometimes an hour or more in a day is wasted by this rather childish method of counting.

As to the administration of law, the House of Commons does its work partly in Supply, when it has the chance to survey Government departments; but it has other opportunities. Except on Fridays, each sitting of the House, after the chaplain has said prayers—we give the beautiful prayer on page 4516—opens with an hour devoted to questions. This is a valuable means of directing attention to administration and other matters. For example, if the postal service in a certain town became faulty, the member for that town would be sure to put down a question to the Postmaster-General asking if he knew of the inefficiency, and if he would take steps to remedy it.

A Member of Parliament who does his work thoroughly has a busy and exhausting time. The House itself sits from early in the afternoon until eleven at night, while the mornings are taken up by committees. Add to this all the correspondence, interviews, journeys, meetings in the constituency, and so on, and the M.P. has more than a man can reasonably find time to do. In practice some members work very hard, and others very little; but forty-eight hours in a day would not be enough to get through all the work a member finds waiting for him.

THE SOLEMN RESPONSIBILITY OF THE OFFICE OF PRIME MINISTER

The King's Government is a body of Members of Parliament chosen by the Prime Minister, who is chosen by the King because he is the representative of the majority of the people who cast their votes. The Prime Minister is thus an exceedingly important man, and his powers are enormous. In choosing his colleagues he decides the fate of great measures, and the spirit of the administration of great offices. It is impossible to exaggerate the degree of responsibility which rests on him, and all his waking hours are filled with anxieties.

Next to that of Prime Minister, the most important officer of the Government is the Chancellor of the Exchequer. He is usually regarded as the Prime Minister's first lieutenant. It is his duty to safeguard the national purse, and to preserve the national credit. It is he who levies taxes.

Hardly less important than the Chancellor of the Exchequer is the Foreign Minister—the Secretary of State for Foreign Affairs. To his hands our relations with other countries are entrusted, and he communicates with them through high officials abroad who are called Ambassadors, or through the Ambassadors of foreign countries resident in London. His is an office of anxious care and deep responsibility, for in it are involved the friendship or enmity of foreign nations, the possibilities of peace and war.

BRITAIN'S PRIDE IN THE DEVELOPMENT OF HER OVERSEAS DOMINIONS

The increasing importance of Imperial affairs has given great prominence of recent years to the office of Secretary of State for the Colonies. Time was when the Colonies were merely regarded as millstones round our necks, and there is a story that when, many generations ago, a certain colony presented a petition to London for the provision of a bishop and clergy to care for their spiritual welfare, they were told by the Colonial Secretary not to worry about their souls but to go

back and grow tobacco. It was that sort of treatment which led to the loss of the North American colonies and to the American Declaration of Independence. In our more enlightened day we take pride in the development of the Overseas Dominions, and the Colonial Secretary's office is correspondingly exalted.

THE MINISTERS IN CHARGE OF THE DEPARTMENTS OF PUBLIC LIFE

Then there is the Home Secretary, whose business is with the country's internal affairs. He has charge of our prisons, and administers the Acts relating to factories, workshops, and mines. The Home Secretary is also responsible for the administration of the laws relating to Shops, Bird Protection, and Aliens, and he controls the police of London, except those of the City Corporation. It is on his advice that the King exercises the prerogative of mercy for criminals.

There is a Health Minister, whose important business is to safeguard physical efficiency, and to administer the Housing Acts and to control Health Insurance. A Minister of Education cares for the training of the nation's children. The Board of Trade concerns itself with industry and commerce, ports, and shipping. A Minister of Transport is responsible for railways.

A Minister of Pensions looks after the millions of pensioners who are a sad legacy of the Great War. The Board of Agriculture and Fisheries has to do with the welfare of our farmers and our fishermen—a strange combination in one office which provoked a Cockney at a political meeting to call the office "Fish and Chips." A Minister of Labour watches labour questions, controls the Employment Exchanges, and manages Unemployment Insurance. A Minister called the Postmaster-General is the responsible head of the Post Office.

THE LORD CHANCELLOR, THE ATTORNEY-GENERAL, AND THE SOLICITOR-GENERAL

The Prime Minister also appoints special Law Officers, the chief of whom is the Lord Chancellor, who sits on the historic woolsack in the House of Lords. In the House of Commons the Law Officers are the Attorney-General and his lieutenant the Solicitor-General, whose legal knowledge is indispensable in passing Bills.

The defence of the country is entrusted to three departments—the War Office, the Admiralty, and the Air Ministry, each of which is headed by a responsible Minister.

All the Ministers named have assistants, called Under-Secretaries in some departments and Parliamentary Secretaries in others. Together, this body of men form the Government. If the Prime Minister resigns, the entire Government resigns with him, and a new Prime Minister chooses fresh men.

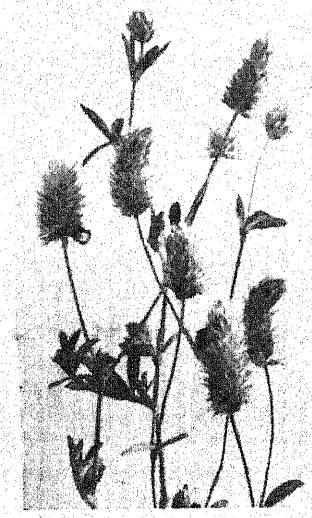
The Cabinet is generally formed of eighteen or twenty leading members of the Government, who meet in secret and whose proceedings are never published. It illustrates the peculiar nature of the British Constitution when we say that the Cabinet is quite outside and quite unknown to the law of the land. At this Cabinet all-important decisions are taken as to what new laws should be made, or what policy followed, on any important subject, or whether a dispute with some foreign country shall end in peace or war.

THE MEN WHO STAY WHILE GOVERNMENTS COME AND GOVERNMENTS GO

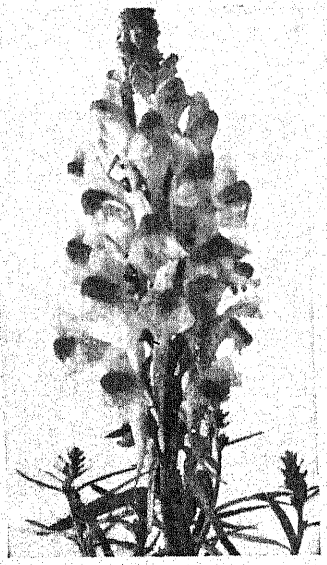
Strangely, too, until about half-way through the Great War, *the Cabinet never kept any record whatever of its proceedings.* However important the business, however far-reaching the decisions made, no minutes were recorded. This was altered in the war by Mr. Lloyd George who, when he took office as Prime Minister at the end of 1916, established a Cabinet Secretary's department which for the first time took formal note of what the Cabinet did, and recorded all its decisions. This was a very much-needed reform, and it again illustrates the changes which from time to time are made in the British Constitution with a minimum of disturbance.

So much for the representative political government of the country. The actual work of administration is carried out by paid officials, who, fortunately, are not changed when the Government or the Parliament changes. Each department is staffed by officials called Civil Servants. The Civil Service has a high reputation for integrity and public spirit, and its permanent character greatly helps British government institutions. When a Government comes into office the new Ministers find steady in their places the working officials who know all about their business, and who carry on essential work of the State while Governments come and go.

FLOWERS THAT GROW IN THE CORNFIELDS



HARE'S-FOOT CLOVER



TOAD-FLAX

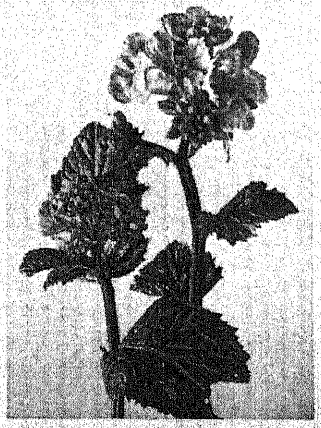
CORN BUTTERCUP

FOOL'S PARSLEY

WILD LARKSPUR

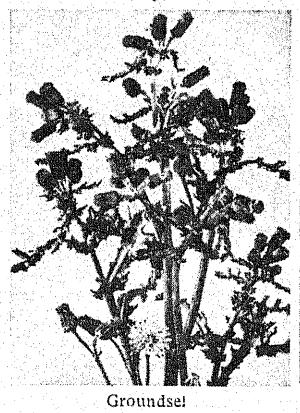
SHEPHERD'S PURSE

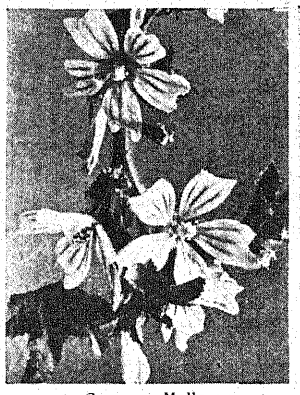
HENBANE



CHARLOCK

WILD CARROT


Groundsel


Common Mallow

Sow-Thistle

FLOWERS OF THE CORNFIELD

BETWEEN the flowers of the meadow and the flowers of the cornfield there is one outstanding difference which strikes the student and the careful observer almost at once. It is that, while the meadow flowers are mostly perennials, growing year after year from the same root, the flowers of the cornfield are in most cases annuals—growing from seed, flower, fruit, and die all in one year.

The reason for this is obvious. The meadow is allowed to remain undisturbed year after year, and so perennial plants can flourish there; but as the cornfield is disturbed every year perennials would become rooted up and destroyed.

Of all cornfield flowers the most familiar is the common red poppy, and a field of ripe wheat well sprinkled with bright red poppies is a beautiful sight for the nature lover or the art student, but a distressing sight for the farmer and the agricultural expert. There are several other red poppies found growing in Britain, such as the long smooth-headed poppy, the long rough-headed poppy, and the round rough-headed poppy, but all these have smaller flowers than the common poppy.

The flowers are borne on long stalks, well covered with bristly hairs, and at first the young flower nods on the stalk. This is partly due to its weight compared with the slender stem; but there is another reason; one side of the stalk grows more rapidly than the other. When, however, the flower is about to open, the concave side of the stalk begins growing more rapidly than the other side, and this rights matters, and the flower becomes erect once more. The two thick hairy sepals which have protected the young flower then drop off, and the petals appear so crumpled that it seems impossible they can ever become smoothed out. As the flower opens, however, the folds disappear and the petal becomes smooth and even. The brilliant scarlet colour is emphasized by the black patch in the lower part of each petal.

The poppy produces no nectar, but is visited by all kinds of insects for its pollen. These, as they crawl about among the stamens and stigmas, effect the fertilisation of the flowers, either by cross or self-pollination. Pollen caught on their bodies is rubbed off on the stigma of a flower, the stamens and petals fall off, and the pistil grows into a large capsule full of tiny round seeds.

This is well worth careful study. It will be noticed that the flower-stalk remains erect, but the seeds in the capsule are protected from rain by a roof. This might suggest that the seeds are so imprisoned

as to be unable to escape. But such is not the case. Just under the eaves of the roof the walls split into a series of small holes, and as the capsule and stalk are swayed about from side to side by the wind the little ripe seeds are shaken out all round, and so the single plant gives rise to a colony. The common poppy provides one of the most interesting examples of this form of seed distribution.

THE BLUE CORNFLOWER AND ITS SENSITIVENESS TO THE TOUCH

Perhaps the next most conspicuous flower of the cornfield is the blue-bottle, or cornflower, a member of the large composite family of plants, and one of our prettiest wild flowers. It is generally of a bright blue colour, but varieties are not uncommon with white, dark purple, or rose-coloured petals. The plant grows to a height of about two feet, with an erect stem, slender and grooved, and has two kinds of leaves, the upper ones long and lance-shaped and the lower ones toothed.

The cornflower is very sensitive. When an insect touches the stamens the filaments at once contract, and a mass of pollen is forced out of the anther tube. We may see this operation for ourselves by taking a fine camel-hair brush or a sharpened pencil-point and with it removing the pollen that projects from the anther tube of a newly-opened flower. A whole thread of pollen will come out of the tube. Another interesting experiment to illustrate the sensitiveness of the blue-bottle's flower is to remove a few corollas from young flowers, slit them open, and put them in a watch-glass under a bell-jar for a minute or two, to help them to revive. Then, if we touch the filaments, we shall see them writhe and contract in a most marked manner. A beautiful blue dye used to be made from the cornflower.

THE CORN MARIGOLD, A RELATION OF THE OX-EYE DAISY

The yellow ox-eye, or corn marigold, another very showy flower of the cornfields, is a close relation of the ox-eye daisy so familiar in meadows. It grows a foot high, and is really a chrysanthemum.

Two of the feverfews are very common in cornfields, the wild chamomile and the corn feverfew, or scentless mayweed. Wild chamomile grows about a foot high and its flowers have the yellow central disc elevated in a conical form, the white rays, which are rather large, being toothed at the end. The whole plant has nearly the same smell as the true chamomile, which grows in gravelly places. The scentless mayweed is rather taller, has larger flowerheads, and blossoms from spring to autumn.

Of the true chamomiles two are familiar in the cornfield. One of these is the corn chamomile, a downy and much-branched plant with its leaves cut into hair-like segments, and flowers that have a yellow disc and white ray florets. The flowers grow on long stalks. The other, the ox-eye, or yellow chamomile, is a very similar plant but grows taller, is more downy, and its leaves are less divided. The flowers are larger than those of the corn chamomile, and have yellow ray florets.

The groundsel, now used only as food for small birds, is a very common plant in the cornfields, and was once cultivated for medicinal purposes. Its name means gr[illegible]-swallower, and this is a reference t[illegible]undance as a weed. It is one of the [illegible]ite family, but its blossoms are not [illegible]e like those of its relations. Still composite plant of the cornfield is [illegible]dow or autumnal hawkbit, a plant [illegible]hree feet high with narrow toothed [illegible]hairy on the ribs, and large, deep-[illegible]flowers.

[illegible]ILK-THISTLE, THE FAVOURITE [illegible]OD OF THE WILD RABBIT

[illegible]ong the thistles, also members of the [illegible]osite family, two grow abundantly i[illegible] cornfields. One is the common sow-thi[illegible]e, or milk-thistle, which is a favourite food of rabbits. It grows two or three feet high, has a thick, hollow stem from which, on pressing, exudes a milky juice. The long leaves are armed with small, prickly teeth, and the yellow flowers grow in clustered heads, developing into one-celled and one-seeded fruits containing many snow-white hairs. Its relation, the corn sow-thistle, is often found growing with it, and is a larger plant with brighter yellow flowers and generally an unbranched stem.

Two familiar members of the pink family are found growing in the cornfield. One is the handsome corn-cockle, a tall, erect plant with long, narrow leaves and large purplish-red flowers, the whole plant being covered with long, soft, whitish hairs; the other is the well-known bladder campion, or white bottle. This is similar to the red campion of the hedgerow but, as its name implies, it has white flowers, which are beautifully fragrant at night. The lower part of the flower, or calyx, is inflated like a bladder, hence the popular

ames bladder and bottle. Both the olour and the fragrance at night are levices to attract the night-flying moths vhich fertilise the flowers.

HE BARTSIA WITH ITS RED LEAVES AND PINK FLOWERS

There are several members of the igwort family in the cornfields, all very nteresting and attractive flowers. The ed bartsia is a little plant that rarely eaches a foot in height, and it has small eddish-green leaves and numerous spikes f tiny pink flowers. It is found all over Europe and in Russian Asia. The large ellow-rattle is a sister plant of the com- non yellow-rattle or cock's-comb of the neadow, about which we read on page 206. t is, however, a taller plant, is much more ranched, and has its flowers in more rowded spikes.

Yellow toad-flax, which has densely rowded spikes of yellow flowers, is another igwort often found growing in the corn- eld. The ivy-leaved speedwell, one of the eronicas and a sister of the better-known ermander speedwell of the hedgerow, lowers all the summer, and has a little lue flower which causes it sometimes to e mistaken for the forget-me-not, which s not a veronica or speedwell but a nyosotis, a member of the borage family. hat family is best represented in the ornfields by the corn gromwell, a little lant with narrow, hairy leaves and small ream-white flowers. This plant has been arried almost all over the world, and is ound in most places where wheat grows.

Two members of the primrose family row abundantly in the cornfields. They re the scarlet pimpernel and the blue impernel. The first is a very pretty little lant usually found prostrate on the round, while its sister with the bright blue lowers grows more erect. Curiously nough, the blue pimpernel sometimes has ed flowers, and the scarlet pimpernel blue, hese varying also to pink and white.

HE POOR MAN'S WEATHER-GLASS WHICH CLOSES AS THE SUN GOES DOWN

Another name for the scarlet pimpernel s poor man's weather-glass, this being a eference to the flower's habit of closing as oon as the sun goes in. The plant possesses ome acrid property, and birds have died rom eating its leaves.

Several members of the buttercup amily grow among the corn. There is the orn crowfoot, or corn buttercup, with ale yellow flowers half-an-inch across; the larkspur, or delphinium, a native of the east Mediterranean region, long cultivated in our flower-gardens, and now a common weed, with showy flowers that are generally blue though sometimes reddish or white; the pheasant's eye, a little plant with finely divided leaves and bright scarlet flowers: and common mouse-tail, a tiny plant found in the damper parts of the cornfield, with flowers so arranged as to show clearly the reason for its name.

Two of the valerians are found among the corn: the common corn-salad, or lamb's lettuce, a smooth and brittle little plant with long, narrow leaves and tiny pale lilac flowers in dense heads at the ends of the stems, which was formerly cultivated for salads; and the toothed, or narrow-fruited corn-salad, with much-toothed leaves and flesh-coloured flowers.

The cabbage family is represented by the wild mustard, or charlock, and this is very much in evidence in May and June, when some cornfields are all golden with its bright yellow flowers. Right up to August it blossoms, though with less profusion in the later months.

THE FLOWERS OF THE WILD CARROT LOOKING LIKE A BIRD'S NEST

There are several members of the parsley family growing commonly in the cornfield. One of these, the wild carrot, is easily recognised by its concave umbels, or heads of flowers, resembling in shape a bird's nest, and this form has given rise to two names by which the plant is known to country children, the bird's nest, and the bee's nest. The plant is the ancestor of our luscious garden carrots, and no better example of the advantages of careful cultivation can be given than the carrot. The root of the wild plant is very small, almost woody in texture, and certainly would never be used as food except by men and women suffering from famine. Yet from it has been developed a really fine and valuable food. Probably a variety with a root larger and softer than usual was found, and transplanted in a garden by some early plant breeder.

Fool's parsley, another member of the family, common in England, is a smooth, leafy annual, a slender plant about a foot high, with dark green leaves and umbels of white flowers. It is both evil-smelling and poisonous, and is found in flower in July and August.

Corn parsley, another umbelliferous plant, is a sister of the common caraway

that gives the housewife her caraway seeds for cakes. It has a slender branched stem which is, nevertheless, very wiry and tough, and the flowers are small and white and appear throughout the summer and autumn.

The small bur parsley is a bushy plant, seldom above a foot high, but much branched and with characteristic parsley leaves. Its flowers are white or pink.

THREE MEMBERS OF THE MINT FAMILY GROWING AMONG THE CORN

The mint or labiate family, so called because the mints belong to it and the flowers have what appear to be labia, or lips, is represented in the cornfield by the the corn mint, the corn woundwort, and the common red hemp-nettle. The corn mint is a low spreading plant with a creeping rootstock and hairy stems and leaves. It is a very variable plant in stature, hairiness, and the size of the leaves. The small lilac flowers grow in dense whorls, and the whole plant has a strong mint smell. The corn woundwort, sometimes called field stachys, is a slender hairy plant with small flowers of a pale purple colour, and it is common all over England in cornfields, though rare in Scotland and Ireland. It has been carried to all parts of the world, and will even grow in tropical countries, but not in the extreme north. The red hemp-nettle flowers from July to October, and is found in gravelly and sandy cornfields.

We should expect to find one of those beautiful pests, the bindweeds, in the cornfield, and we are not disappointed. The one most common there is the field bindweed or lesser convolvulus. It is a most destructive plant, turning round the stalks of corn, and preventing them from developing properly. We may well feel sorry that the field bindweed is such a nuisance for it is a very attractive flower, the blossoms being white or rose-coloured, an inch or more in diameter, and very fragrant. They open only in sunny weather. The slender rootstock creeps underground, and once the plant has a good hold it is difficult to root it out.

SHAKESPEARE'S ROMANTIC DESCRIPTION OF THE WILD PANSY

There is one member of the violet family often found in the cornfield and that is the pretty little heartsease, or wild pansy. The pale yellow or purple flowers have a mixture of colours, and are like miniatures of some of our garden pansies, being often less than an inch across. The beautiful name of the plant was given because in the old days the flowers were considered useful in diseases of the heart, though Shakespeare in A Midsummer-Night's Dream calls it by the even more romantic name of love-in-idleness.

A little western flower,
Before milk-white, now purple with love's wound,
And maidens call it love-in-idleness.

A very handsome flower of the cornfield is the field scabious, a relation of the teasel. It is a tall, bristly plant growing two or three feet high, with large, beautiful flowers of lilac. The henbane, a relation of the deadly nightshade, often grows in the cornfield, where its funnel-shaped, cream-coloured flowers with purple veins are very conspicuous. The whole plant has a strong and very disagreeable odour, something like that of mice, and as it is strongly narcotic, especially when the seeds are opening, it should not be smelt at all closely. In fact, it is a plant to keep away from. An extract of henbane is used in medicine, to produce the effect of opium without the unpleasant symptoms of that drug. Country people used to smoke the capsules and seeds of henbane as a remedy for toothache, but the practice is extremely dangerous and convulsions, and even temporary insanity, have often followed the smoking.

THE LITTLE CHEESES WHICH COUNTRY CHILDREN PICK FROM THE MALLOW

A striking flower often seen in the cornfield is the common mallow. It is an erect plant with several ascending stems, and is clothed with hairs. The leaves, which are lobed though not very deeply divided, have a saw-like edge, and the showy flowers of lilac with crimson veins are extremely striking. These flowers develop into flat fruits which the country children call cheeses, gathering them in the unripe state and eating them in large numbers. They have not much flavour, but are fortunately harmless. The pollen of the mallow is a very beautiful object when seen under the microscope. The grains are studded with tiny prickles which attach themselves to the hairy legs of the bees visiting the mallow and so they get carried from flower to flower.

Another plant of the cornfield is Venus's looking-glass, a small plant with a rough, angular stem, with rough leaves and purplish-blue flowers. It is a member of the bellflower family, which includes the harebell, the lobelia, and the rampions.

The last ride of Rudolph, founder of the Hapsburg dynasty which collapsed in the Great War

AUSTRIA'S RISE AND FALL

IN the story of Germany we see the immense importance of the great south-to-north highway of Europe, the Rhine. Let us now turn to the great west-and-east highway, the mighty Danube.

It is twice as long as the Rhine, for here is a course of nearly 2000 miles between the bubbling spring of its source in the Black Forest and the delta of many mouths in the Black Sea. Some 400 tributaries join it on this long journey from west to east—little rills in the Black Forest, icy streams from the snowy masses of the Alps, full swelling rivers from the great circle of the Carpathians, besides the rivers that drain Rumania and Bulgaria.

From the earliest times the old peoples of the world pressed out of Asia into the heart of Europe, chiefly by the great highway of the valley of the Danube. There were the old Celts, the early Teutons, and the later hordes who destroyed the old Roman Empire. The Danube was the empire's chief boundary on the north.

It was towards the end of the eighth century, when Charlemagne was steadily gathering the rule of Europe into his strong hand, that a province grew into shape on the Danube, near the end of the Eastern Alps. This was the boundary of Charlemagne's empire, the eastern outpost of the German peoples for ever fighting back the oncoming Slav races from the east. This province is still called the East Kingdom, for that is the meaning of the name Austria, and from the kernel of the two States of Upper and Lower Austria on the Danube the dominions of its rulers gradually spread over the kingdom of Bohemia and Moravia to the north, over the mountains that shut in Bohemia to a strip of country beyond the northern slopes of the Carpathians, now called Galicia. Southwards, too, the Austrian dominions spread, and absorbed Tirol, the Eastern Alps, and the provinces between the Danube and the Adriatic.

For 600 years the story of Austria was the story of the dealings of a family, the family of the Hapsburgs, with their neighbours. When Rudolph of Hapsburg, in the thirteenth century, was chosen by the electors to head the German States as Holy Roman Emperor, few guessed the resolute character of the man who was to do so much towards restoring law and order, and in establishing the fortunes of his house. In the story of Germany we read of the extraordinary rise to power of his descendants, of Maximilian, of Charles the Fifth, and many others, and how by conquest, by treaty, by marriages, they

gained possession of Tirol, the Netherlands, and Spain with its golden empire stretching out far west across the ocean.

With some exceptions the title of Holy Roman Emperor remained with the Hapsburgs, causing them to be much mixed up with the Pope and the kingdoms and duchies in Italy. Unhappily, the connection with Spain, always fervently Roman Catholic, nourished in Austria a bitter spirit with regard to the Reformation, and during the terrible Thirty Years War the Hapsburgs were chiefly to blame for the prolonged ruin and misery spread over all the German States.

Bitter and cruel were the persecutions practised by the House of Austria in the States that fell under their despotic and narrow rule, and nobody is sorry that it has now disappeared for ever. Mr. Gladstone once said that nobody could put his finger on a map of the world at any point and say with confidence, "There Austria did good."

THE CRUSHING OF THE BOHEMIAN NATION AND THE SPLITTING UP OF POLAND

To the north of Austria lies Bohemia, the country of the Czechs, whose relations with Austria were ever changing. Now Austria was subject to Bohemia, and now Bohemia was subject to Austria. Long and gallant were the struggles made by the Bohemians to preserve their liberties and their distinctive language; but the Austrians, though frequently checked, finally became stronger in their power over the country.

At last, in the Thirty Years War, even the victories of the Swedish king, Gustavus Adolphus, could not save them, and for long years the stifling rule of Austria became fixed, so that progress and national feeling, and even language, seemed to be crushed But not hopelessly so.

Bohemia took a brave share in the struggles for freedom that went on in Europe during last century, and many of her hardships were removed at last. She won religious liberty, self-government, and representation in Parliament at Vienna, and freedom to revive Bohemian literature and art and the mother-tongue.

Bohemia lies in the basin of the Elbe, which, like the Oder, drains to the north. By these rivers, through the encircling ring of mountains, we pass to the province of Galicia. This, too, was settled in the far past by a Slav nation, the Poles. Constant and bewildering were the changes that came to them through the centuries About the time William of Normandy was conquering England the Poles were forcing their way through the Carpathians and overrunning the great plains. Four hundred years later the King of Poland was chosen to be King of Bohemia.

THE LITTLE PIECES OF PAPER THAT CALLED THE TIROLESE TO ARMS

When the Tudors were making themselves absolute in England, Poland was extending its borders in every direction, and securing reforms of many kinds. After that it lost its independence, regained it, lost it again, and suffered much. We see it flashing out in brave deeds—as in the relief of Vienna, when it drove away the Turks; and then comes the sad story of the sharing-out of this ancient kingdom among stronger Powers, Austria's share lying chiefly in the province of Galicia.

South of the Danube other Slav races settled, as well as Teutons and Italians, and many States of mixed nationalities grew up and were gradually absorbed by Austria. At Innsbruck, the capital of Tirol, is a bronze and marble memorial of the union of Tirol with Austria over 500 years ago. The famous tomb of the Emperor Maximilian is in the cathedral there, though he is buried elsewhere. But more interesting than all the reminders of kings in Innsbruck are the relics and monument of the patriot Andreas Hofer, who made such noble and determined efforts to defend his fatherland from French oppression. "It is time," he wrote on little bits of paper, and cast them to the hurrying streams to carry far and wide, and rouse the Tirolese, ready and waiting to fly to arms at his call. We read his story on page 894.

Salzburg is another famous Austrian town south of the Danube. The town of Enns gives a link with English history in the times of the Crusades. Its walls were built with the money gathered to pay the ransom of Richard the First when he was captured on his way home through Austria.

THE ANCIENT KINGDOM OF HUNGARY AND ITS THOUSAND YEARS OF STRUGGLE

Of all the neighbours with whom Austria fought with varying success as the years rolled on, the most distinct and considerable were the Hungarians. A century after the Austrian State was formed, a race of people from Asia, the Magyars, quite different from the Teutons

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THE MANY AND VARIED PEOPLES OF THE OLD KINGDOM OF AUSTRIA

It must be remembered that there was no united Austrian nation, no common Austrian tongue; but that the empire consisted of a leading German state, broken off from the rest of the German-speaking peoples when Prussia rose to be their head; of various States which were fragments of other nationalities, some still speaking their own languages, some more or less absorbed by their German rulers. Besides these, there was the independent nationality of the Hungarians, of quite different origin from the Germans, and possessing its own speech, manners, and constitution.

With the Magyars of Hungary united with Austria only through the king, and hostile in feeling towards the other races within the empire; with Bohemia and Moravia, the most flourishing part of the dominions, inhabited largely by a Czech population which gloried in its past and had never lost the hope of regaining independence; with Galicia peopled by Poles in the west and Ukrainians in the east; with the Transylvanian Highlands of Hungary chiefly peopled by Rumanians whose sympathy flowed towards the country of their own race and tongue; with Southern Tirol and Kustenland restless because their populations were Italian; with all its southern provinces—Carniola, Croatia, Slavonia, and Dalmatia—filled with people of Slav origin, like the Czechs and Poles of the north, Austria was far more loosely held together than any other country in Europe.

THE SMALL MINORITY THAT GOVERNED LARGE AND DISCONTENTED MAJORITIES

Yet, instead of trying to secure greater compactness and a closer union between her ill-assorted parts, Austria sought further expansion in the direction where there was greatest danger. When the Turkish hold on the Balkan Peninsula began to slacken, Austria seized Bosnia and Herzegovina as

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How the Austrians Tried to Destroy the Nationality of the Hungarians

In the history of Hungary, full of progress, loss, alliance with neighbours, and bitter wars with them, stand out many great rulers and soldiers. One of these soldiers, John Hunyadi, fought bravely as the champion of Christianity against the Turks, but the Turks fought bitterly and ruined the country by their warfare when a prince of the House of Hapsburg was elected King of Hungary as well as of Bohemia. The Turks did not like this, and for long years the unhappy country was desolated by war.

But Austrian rule had come to stay against the wishes of the Hungarians. For over 300 years there were oppressive taxes, risings of the people, and every effort made to destroy the nationality, the language, and the free spirit of the Hungarians. Hope revived at times, and there was a glimpse of freedom when Hungary was recognised as an independent nation, when the storm of the French Revolution was about to burst. But the privileges were lost again, and it needed years of patriotic endeavour through the first half of last century to wrest back, bit by bit, the ancient rights so long trampled under foot by the Austrians. In 1868 Francis Joseph, Emperor of Austria, was crowned King of Hungary with the ancient crown of St. Stephen, after promising to govern according to the old constitution of the country; and so it came to pass that the blood of the patriots was not shed in vain through the long years of struggle; for at last Hungary sat side by side, equal with Austria in the Dual Monarchy of the Danube.

The Many and Varied Peoples of the Old Kingdom of Austria

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The Small Minority That Governed Large and Discontented Majorities

Yet, instead of trying to secure greater compactness and a closer union between her ill-assorted parts, Austria sought further expansion in the direction where there was greatest danger. When the Turkish hold on the Balkan Peninsula began to slacken, Austria seized Bosnia and Herzegovina as

parts of her empire, though the people were overwhelmingly Slav in race. Little more than one-third of the people of Austria were of the German-speaking Austrian stock ; and barely more than half the inhabitants of Hungary were Magyars, or racial Hungarians. Thus throughout the Dual Empire there was government by a minority of ever-increasing and discontented majorities, who wished for the freedom they saw enjoyed by neighbouring races. Three-fifths of the population of the whole empire of Austria were of Slav origin.

THE EVENTS THAT BROUGHT EUROPE'S OLDEST EMPIRE CRASHING DOWN

These facts must be realised if we are to understand how, under stress of war, the oldest empire in Europe crumbled suddenly into fragments. When the crash of defeat came, in the Great European War, more than twenty million Slav people —Czechs, Croats, Slovenes, Bosnians, and Serbs—formed themselves into two countries, leaving the Austrians and Hungarians proper comparatively small States. Yet the amazing start of the war was an attempt to crush out of existence the one free Slav country, Serbia.

The heir to the Austrian crown having been murdered in the summer of 1914, when visiting Sarajevo, the capital of Bosnia, the Austrian Government fixed the blame on the neighbouring country of Serbia, and imposed such terms of punishment that it was clear the murder was used only as an excuse for bringing Serbia under Austrian mastership. Germany arranged and supported these terms, and so hurried Austria to her doom—and the Peace of Europe with her.

Of a population approaching fifty millions, probably not half of the Austro-Hungarian people were in favour of the war, and in no direction was the Austrian offensive successful unless it was strengthened by a mixture of German troops.

THE NEW STATES FORMED AS A RESULT OF THE GREAT WAR

The Serbians, Russians, Italians, and Rumanians were all successful until German troops were drafted to the Austrian fronts, and the explanation was that only the German and Hungarian races in Austria-Hungary had any deeply-rooted sympathy with their Government.

On the third of November in 1918, eight days before the Armistice with Germany was signed, the Austrians unconditionally surrendered after four years and three months of war. Three days before Bohemia and Moravia had joined together and proclaimed the Republic of Czecho-Slovakia in the north ; while the southern Slavs had agreed to form in the south, with Serbia, the kingdom of Greater Slavia (or Yugo-Slavia). The young Emperor Carl, who had succeeded the old Emperor Francis Joseph, disappeared into private life, and Austria and Hungary each formed a Republic, while Transylvania was annexed to the Kingdom of Rumania. Later, under the terms of the Treaty of Versailles, Southern Tirol, the Peninsula of Istria, and the district northwards known as Kustenland, were ceded to Italy. Part of Galicia passed to the Russian State of Ukrainia, and part to Poland.

These changes left the proud empire of Austria an entirely inland State, cut off from the sea by Jugo-Slavia and Italy, and reduced to a population of seven and a half millions ; while Hungary, confined to a region where the Magyar race is in a majority, now has a population of only ten millions.

Thus, from the ruins of the Austro-Hungarian Empire rise the two considerable Powers, Czecho-Slovakia and Yugo-Slavia, while Rumania, which absorbs Bukovina from Austria, Transylvania from Hungary, and Bessarabia from Russia, is nearly twice as large as Austria and Hungary together, and has a million more population.

THE SAD STATE OF A CITY WITH CENTURIES OF HISTORY

Though the Austrians, as a governing race, have never been successful, yet with people who are not governed by them they are liked, for they have courteous manners and none of the coarseness of the Prussian character ; and they have borne their misfortunes as becomes a people who have played a big part in history.

Especially does the great city of Vienna, their capital, put sadness in the hearts of those who know it, for it has a long and splendid history on the boundary line between the civilised West and the barbarian East. It has been the centre of Austrian art, learning, and industry, and has been made, in planning and architecture, worthy of its place in history. But how it can be sustained, now that Austria is reduced to a few provinces with inconsiderable manufactures and raw materials, no one can say. Already its population is rapidly shrinking in numbers.

Austria still has valuable mineral deposits in Styria, Carinthia, and Lower Austria, and opportunities for manufacturing activity, but her richest industrial districts now belong to Czecho-Slovakia, and Prague will grow as Vienna declines. A great deal of the country that is left her is mountainous and beautiful, as the remnant of Tirol around its lovely capital of Innsbruck, and the delightful Salzkammergut, a lake district like our own, but on a far greater scale, with the ancient town of Salzburg at its entrance. But these alluring mountain lands are Alpine, and their products do not support large populations. Of the dozen chief towns that once were Austria's proud boast, only Linz on the Danube and Graz in Styria remain to keep Vienna company.

The greatest natural feature of the country, and the most helpful, is the noble Danube, which passes through the heart of the land in stately flow, coming from Bavaria and linking Vienna with the Hungarian capital of Budapest, before it roars through the Iron Gates and reaches Belgrade, the capital of Serbia, and then, crossing the Rumanian plain, makes the boundary between Rumania and Bulgaria.

Once Austria was in a position to regard the Danube almost as her own. Now she is only one of the smaller partners in its usefulness to Central Europe. So have the mighty fallen; so does unwarranted ambition bring the strongest to their doom.

The condition of Austria after the war was so appalling that the sympathy of the world was drawn to her. Industry was at a standstill. Financially the country was ruined beyond recovery unless help from outside was available. Vienna was in a state approaching famine. Her children were suffering terribly from want. The appeal of childhood, under the scourge of privation and the weaknesses that follow in its train, touched the hearts of the people of more prosperous nations, and thousands of children were brought into other lands to recover their strength and health, the British nation doing its full share in generous relief, both by receiving children as visitors and ministering to their wants in Vienna.

To give more permanent assistance to a suffering nation—whose people were suffering for the most part in innocence—the League of Nations, in the autumn of 1922, worked out a scheme for the restoration of Austrian finances within two years under the control of a High Commissioner appointed by the League. The Governments of Great Britain, France, Italy, and Czecho-Slovakia agreed to guarantee a loan of £25,000,000 to meet the national deficit during two years if the Austrians would on their part carry out certain financial reforms.

The Austrian Government exerted itself to work in concert with the League and the guaranteeing Powers, and though, at the end of the two years, the position of stability expected could not be fully sustained, the state of the country promised well for the future.

This international rescue of Austria from a condition of bankruptcy was the most substantial contribution the League of Nations had made to the renewed prosperity of the world during the early years of its existence, and showed how real its help might be in enabling nations to save from ruin a hapless neighbour State. The result was a very substantial increase of Austrian industry, and a renewal of public confidence; and the new Austria has the goodwill of all nations.

THE STORY OF HUNGARY AND ITS PEOPLE

The Hungarians, a nomadic race of Asiatic origin, burst into Europe about the year 900, under a leader named Arpad. A nation of horsemen, brave and terrible in battle, they thrust themselves like a wedge between the Slav races in Bohemia and Serbia, and settled in the fertile plain of the middle course of the Danube.

About the year 1000 they were organised by a great elected king, Stephen, into a powerful nation, and the arrangements he made for governing the country, under a number of chosen nobles have left some traces to the present day.

The fame of Stephen, and of a later king named Matthias, left in Hungary a feeling in favour of kingship which has not yet subsided, and Hungary only accepted peaceable union with Austria by taking the Austrian emperor as her own king, and regarding herself as a separate country. Even now the feeling remains, and when, from out of the national ruin brought by the war, a Hungarian Republic emerged and arranged for a general election, the first act of the new Hungarian Parliament in 1920 was to elect, not a President but a Regent, and to announce

that, though she had no king, Hungary remained a monarchy, governed by a Royal Ministry.

A glance at a map of Hungary as it was before 1918 shows it as a country surrounded by mountains. From the Hungarian gate, near Pressburg, where the Danube enters the country through a defile between spurs of the Alps and Carpathians, mountains ring the land northward in a great semi-circle, till they spread out broadly in the East over the whole province of Transylvania, and meet the river again 600 miles away, at the Iron Gate rapids, where the waterway becomes the boundary between Serbia and Rumania. To the westward outlying ridges of the south-eastern and Dinaric Alps skirt the country, and cross Western Croatia till they pass into the highlands of Bosnia and Serbia.

THE GREAT PLAIN WHERE THE MAGYARS MADE THEIR HOMES

The central part of this mountain circle is a great plain with the Danube passing through the middle of it, and receiving from the Carpathians the tributary river Tisza and the Transylvanian Maros, and from the Alps the Drave and the Save. The foothills of the Carpathians extend a hundred miles to the plain.

It was in this plain that the Magyar race made its home, first as a nomadic cattle and horse-rearing people, and then as settled agriculturists; and though, by its warlike energy and central position it has held the Slav peoples around as subject races, it has never been able to win their hearts or wean them from their own languages.

Thus the Transylvanian hills were inhabited by a majority of Rumanians, and the lower or southern part of the plain by Rumanians and Serbs; while the Carpathian slopes, to the very edge of the plain in the north, or beyond it, were peopled by Slovaks, allied in race to the Czechs of Moravia; and in the south, between the Drave and the Save, in Slavonia and Croatia, the mass of the people were closely allied in race and speech to the Serbs.

THE BREAK-UP OF HUNGARY AND THE GROWTH OF SURROUNDING STATES

When the crash of the Great War came, all these surrounding races, who had never been reconciled in feeling with the Hungarians, broke away and joined the new countries that were forming, drawn together by similarity of race and language.

Thus all the Transylvanian highlands and the eastern edge of the plain passed over to Rumania. The Carpathian highlands and the northern edge of the plain, inhabited by Slovaks, eagerly joined with the Slav Czechs of Bohemia and Moravia, who had seceded from Austria and made up the new republic of Czecho-Slovakia; while another section of the people of the southern part of the plain joined Serbia to form what is now called Yugo-Slavia, along with the inhabitants of the two Hungarian provinces of Slavonia and Croatia, and the Austrian provinces of Carniola, Bosnia, Herzegovina, and Dalmatia.

In this way an enormously large Rumania was formed on the eastern side of Hungary, an enormously enlarged Serbia on the south, and a new country of Czecho-Slovakia on the north; while Hungary itself was left with less than half its population and much less than half its territory, and something like a million Magyars were included, as a small minority, in the fringes of the three lands that had pared Hungary down into a small, compact, almost exclusively Magyar state.

THE LIBERTY THAT HUNGARY STROVE FOR BUT DENIED TO OTHERS

For this diminution of her territory Hungary was herself largely to blame. No people had struggled more bravely than the Hungarians for their own liberty in the past: but when they gained their independence from Austria, and ranked in the empire as an equal State, they had not treated the Croats, Slovenes, Slovaks, and Rumanians within their borders as they wished to be treated themselves, but had tried to suppress the languages and usages which the Slav races cherished. When the Hungarian kingdom, which had zealously favoured the war as likely to give it more power, found itself on the beaten side, the people fell into powerless disunion. The capital, Budapest, gave itself up to an orgy of brutal communism under Jewish dictators, while the country people were nerveless and disorganised, so that the Rumanians occupied by force the lands which they thought were theirs by sympathy and race.

No country was treated more severely than Hungary after the war, because on every hand she lost districts in which considerable numbers of Hungarians lived, though they did not form a majority of the

inhabitants. Outside the central plain the provinces taken from Hungary were hers only by annexation, and naturally joined their kinsmen in the adjacent lands, but the plain was Hungarian by long historical occupation, though its fringes had mixed populations. The drawing of the frontier line was specially difficult, as historical claims clashed with numerical racial claims. Hungary, as the loser in the war, came off second best whenever these claims were balanced against each other.

The Rumanians asserted that when their country was over-run during the war Hungary stripped them of much of their agricultural wealth in stock and machinery, and they in return invaded Hungary and retook what they could find, and perhaps more. Hungary and Transylvania were lands where large estates were common, and after the war Rumania, as part of her internal policy of national re-organisation, divided all estates of a certain size (100 hectares) among the local peasant cultivators, thus penalising the Hungarian landowners. So there was not only national loss of territory but individual loss of land which was hard to bear.

The Hungarians as a proud, conquering, and hitherto dominant people, felt keenly the loss of territory associated with their early history. Thus Estergrom (or Gran) which was the capital of Hungary in the reign of Stephen the First and is still the ecclesiastical capital (or what Canterbury is to England) is now only divided from Czecho-Slovakia by the Danube; and Pressburg, which for centuries was the capital of the country, is now (under the name of Bratislava) the capital of Slovakia, a province of Czecho-Slovakia.

Hungary, however, is still left with the richest of its lands, a country with immense agricultural resources, connected closely and compactly with its fine capital, Budapest, the centre of its railway system and of its great waterway of the Danube; and its ten million people may, by peaceful industry, give it a prosperous position among the nations.

THE CZECHO-SLOVAKS AND THEIR COUNTRY

The independence of Czecho-Slovakia was proclaimed on October 28, 1918, a fortnight before the Armistice was signed between Germany and the Allied Powers that were opposing her in the Great War.

The formation of this new republic was a striking proof of the influences over mankind of descent from races that are akin and of historical pride. A large majority of the people of Bohemia and Moravia (included previously in Austria), of Slovakia (included previously in Hungary), and of Upper Silesia (partly included in Austria and partly in Prussia), were of Slav origin, and spoke either the Czech language or dialects allied to it. With them went a small block of Ruthenians (of Russian race) who adjoined Slovakia south of the Carpathians, north of Transylvania, and west of Bukovina. All these peoples swiftly made up their minds to join in cordial unity, and to revive the glorious memory of the old kingdom of Bohemia.

No movement of peoples following the war awakened more ardent interest in other lands, for the Czechs had long been out of sympathy with Germans, Austrians, and Hungarians alike, and their national feeling had been growing strongly through the nineteenth century in politics and literature. It had shown itself in the Austrian and Hungarian Parliaments and in books and education. Thus, in Prague, the capital of Bohemia, there were two universities, one Czech and the other Austro-German, and the Czech university had twice as many students as the Austrian university, while the Czech higher technical schools outnumbered the scholars using the German language six times over. The higher schools of Brunn, the capital of Moravia, were similarly, but more equally, divided.

Historically, the Bohemian and Moravian Czechs had a right to be proud, for their mountain lands, walled in from the rest of the world but hemmed between Germany, Poland, and Hungary, had been famous in thought, religion, education, public spirit, industry, and bravery. Ground between surrounding Powers, particularly Poland and Hungary, when those countries were strong and ambitious, and always being penetrated through their mountain frontiers by German influences, the Czechs, though again and again submerged under attacks from all sides, rose imperishable, a people proud of their ancestors and wishful to play a part of their own in the world's affairs.

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They remembered with honour the men of their race who had a European reputation—their Charles the Fourth, son of the blind king whom the English killed at Crecy,

who brought the country a new birth ; and George of Podebrad, their selected king ; the brave John Huss, the successor of Wycliffe, and the cultivator of a love of religious freedom which has been cruelly suppressed but has never died out in Bohemia ; and John Komensky (or Comenius), the first really popular educator who understood the needs of children, and whose influence underlies all the schools of Europe today. Comenius was a bishop of the Moravian Church who made the teaching of languages his favourite work, and adopted the system now used in small language manuals, with simple sentences in various languages saying the same thing. He also first used pictures as an aid to children's lessons. He broadened education by including history, geography, and science Much of his life was spent outside his own country, in England, Sweden, and Holland, where his methods were appreciated He died in 1671.

THE GREAT MINERAL WEALTH OF THE PROVINCES OF CZECHO-SLOVAKIA

The Czechs know, too, that their land, from an industrial point of view, is the most favoured in Central Europe. Bohemia, Moravia, Silesia, and Slovakia are rich in minerals. Coal is found in abundance in each of the provinces, particularly in Silesia and Bohemia ; iron in Bohemia, Slovakia, and Moravia ; gold and silver in Bohemia, Moravia, and Slovakia ; and rarer metals, such as copper, tin, antimony, cobalt, nickel, and arsenic are available. The manufactures include machinery, textiles, glass, chemicals, and furniture ; while agriculture is all-embracing, and surpasses even the industries in value. Beet-growing and sugar-refining are highly important ; the fruit crop is a conspicuous export ; potatoes are largely grown, and forests are extensive.

By the formation of Czecho-Slovakia, Austria and Hungary both lose their best mineral supplies.

A NATION OF FOURTEEN MILLIONS SETS OUT ON A NEW CAREER

To a considerable extent Czecho-Slovakia has strong natural boundaries. Bohemia is a tableland surrounded by mountain ranges, the highest part of the plateau being in the south, so that the rivers—the Elbe and its navigable tributary the Moldau, on which stands Prague—run northward, breaking through the mountain ring. Moravia is a similar plateau, but tilted southward, so that its chief river, the Morava, from which the country is named, empties into the Danube, its lower course now separating Lower Austria from Slovakia. Silesia is beyond the northern mountains of Moravia, but on their slopes descending towards the River Oder, without reaching its plain. Slovakia is edged to the north by the Carpathians, but descends into the plain.

Czecho-Slovakia began its new career as a nation with nearly 14 million inhabitants. Of these its magnificent historic capital Prague has 670,000, and Brunn 200,000. Other large towns are Pilsen in Bohemia ; Pressburg, the capital of Slovakia ; and Olmutz, a manufacturing centre in Moravia.

The Czecho-Slovakian Republic elected for its first President, for seven years, Professor Masaryk, of the Czech University of Prague, the man who more than any other had aroused, stimulated, and guided the Czech national feeling.

Of the new nations formed at the end of the Great War the most successful and prosperous during the ensuing five years was the Czecho-Slovakian Republic. It quickly won the goodwill and admiration of Europe. Though its population was mixed—Czech, Slovak, German, Magyar, and Ruthenian—it went on steadily with peaceful improvement, organised a thoroughly democratic but stable government, put its finances in good order under great difficulties, and increased its industries with astonishing rapidity.

THE LEADER OF THE NEW NATIONS IN EASTERN EUROPE

This was due to able and trusted leadership, to the great national wealth of the country, and to the high standard of skill, intelligence, and willing co-operation of its people. Prague became a capital towards which Europe looked with confidence and gratification.

President Masaryk, Dr. Benes, and the Foreign Minister ranked at once as European statesmen ; and Dr. Rasin, the Minister of Finance, though less known abroad, was equally masterly in his department. These were the capable men who formed the Republic, and they were trusted as they deserved to be. No other nation produced such wise and consistent leaders able to concentrate national energy on sound recovery from the effects of war.

Czecho-Slovakia became the leader of the new nations of Eastern Europe, which

required time to consolidate themselves against possible interference by the Soviet Government of Russia. Dr. Benes was the originator of the understanding that Poland, Rumania, and Yugo-Slavia should unite with Czecho-Slovakia against any unprovoked aggression that might arise. This is known as the Little Entente.

In many ways the country gave evidence of being enlightened and practical, and no part of the Slav race has shown such a union of hopeful qualities as the Czechs.

THE YUGO-SLAVS AND THEIR HOMELAND

One of the sensational effects of the Great War was the complete upsetting of the group of nations known as the Balkan States

Those nations had been Serbia, Bulgaria, Turkey, Greece, Albania, and Montenegro, with Rumania disowning association with the rest and Austria a powerful intruder But now great changes have been made. Turkey has been limited to Eastern Thrace; Rumania has extended northward till she becomes a Power of Middle Europe; Serbia, incorporated in a new nation, also reaches Central Europe, and has a population of about twelve millions

The States forming the United Kingdom of Yugo-Slavia, to distinguish it from the kindred nation Czecho-Slovakia, are Serbia, Montenegro, Herzegovina, Bosnia, Dalmatia, Slavonia, Croatia, Carniola, and a part of the Istrian Peninsula

Here we have a country 600 miles long by 300 at its greatest breadth, inhabited by people who, though separated from each other by mountain barriers, are drawn together by four main facts

First, though races and religions are mixed, a large majority of the people are of the same stock, and long ago were driven into these hilly lands by invasions of Huns and Bulgars who were not near akin to them. Secondly, they all retain the same foundation for their language, though separation among the hills has brought them several strong dialects Thirdly, Serbs and Croats and Bosnians, Slovenes and Dalmatians, had all alike suffered under the rueful experience of being governed against their will, all of them by Turks, some by Magyars, and others by Austrians

Again, the lives of all the Slav people between the Danube and the Adriatic were very similar. All lived by agriculture in forest lands with valuable minerals in the hills, remote from the manufacturing world—coal, iron, copper, and even quicksilver in Slavonia. But each State was hampered by dreary mountains fencing it off from the Adriatic Sea, with Italy on the other side of the sea jealously keeping watch on the best outlets for traffic

Serbia was the natural rallying centre for these Slav races, for Serbia had already won liberty and gained by her defence of it the admiration of the world.

And so Serbia, sloping northward from the Balkan Mountains by her River Morava, sends her produce by Belgrade, her capital, to the Danube; and, sloping southward by the River Vardar, she trades through Greece to Salonica on the Aegean Sea

Bosnia reaches the sea more directly, for its capital, Sarajevo, sends through the mountains, past Mostar, the chief town of Herzegovina, a railway to Gravosa on the Adriatic, the harbour of the ancient port of Ragusa.

Zara, the capital of Dalmatia, is an Italian-looking town, but the principal port, Spalato, has an advantage, which Zara has not, of railways leading into the interior to Sarajevo, and on to Esseg, the capital of Slavonia, and Zagreb, the capital of Croatia Zagreb, the principal town in this part of the new country, reaches the sea by rail both at Fiume and Trieste, and connects up with Belgrade through the valley of the River Save.

Each State in Yugo-Slavia, except Dalmatia and Montenegro, is largely forest land, with swine, sheep, and goats as the most numerous animals. Maize is the most used of cereals; tobacco is grown here and there; potatoes are much used as food in the lower lands. Fruit is an important product, especially plums. The only flat regions, except the part of the Hungarian plain around the Danube and the Tisza, are the central part of Croatia, which is much-flooded fenland, and the eastern part of Slavonia, a fertile corn-growing tract

The gem of the whole country is the Alpine pasture-land above the town of Zagreb, leading into Carniola. Dalmatia is bare and mountainous, and its people are largely engaged in transit work

connecting the inland States with the Adriatic coast. Bosnia, which was under Turkish government for 400 years, is curiously mixed in religion, for, although the people are nearly all Slav by race, about a third of them are Mohammedan in faith. So, indeed, are many of the inhabitants of what was formerly called Macedonia, who have now been absorbed into Serbia, but the instincts of race, freedom, and language have had an overpowering effect in producing national unity. This influence is seen in the adhesion to the Serbian State of the little mountain kingdom of Montenegro, which has always prided itself on its independence, but has now become merged in the larger State.

Montenegro had been governed, in a patriarchal way, by its king Nicholas for 58 years, when in 1918, by the will of his people he was deposed that they might complete the union of the Southern Slav race. He died out of his country in 1921, a sad old man. The chief town of Montenegro is Cettinje. Antivari and Dulcigno are its ports. The population of the province is about half a million.

Yugo-Slavia has the usual difficulty of the countries of Eastern Europe—a variety of races, sometimes closely intermixed, with some differences of language and tradition in the main race. The Serbs, Croats, Slovenes, Bosnians, and Montenegrins are all Slavs, but have strong local associations. The country's chief problems are, first, the reconciling of the unity of the kingdom with a sufficient freedom in the local government of its different parts; and, second, access to the Adriatic Sea for trading purposes.

Italy, as a country out in the open world with a sea trade for 2000 years, has long historical associations with the eastern seaboard of the Adriatic, and the trade of its ports is largely carried on by Italians. She may be said to be dominant there since she annexed Trieste and Austria became an entirely inland country. Before the war, Fiume was an outlet port for Hungary, as that country held the inland provinces behind Fiume. Now these provinces are part of Yugo-Slavia. The trading part of Fiume has a majority of Italian inhabitants, but its inland suburb Shushak, which also reaches the sea, is inhabited by Slavs, and the whole region is territorially in Yugo-Slavia. But its people are not a seagoing people. Historical sentiment and maritime trade are regarded by Italy as giving her a right to dominate the port. Yugo-Slavia, on the other hand, regards Fiume as a natural outlet for her products.

The question, after long negotiation, conducted with wise restraint by Yugo-Slavia, has been settled by making Fiume an independent port under Italian influence; but as Yugo-Slavia develops from an agricultural country to a country with industrial interests—for she has substantial mineral wealth—the position is bound to involve difficulties in the future.

Yugo-Slavia, at present, is a comparatively undeveloped country, with promise of growing importance.

THE MOUNTAIN STATE OF ALBANIA

Albania began to exist as a separate acknowledged nation in 1912.

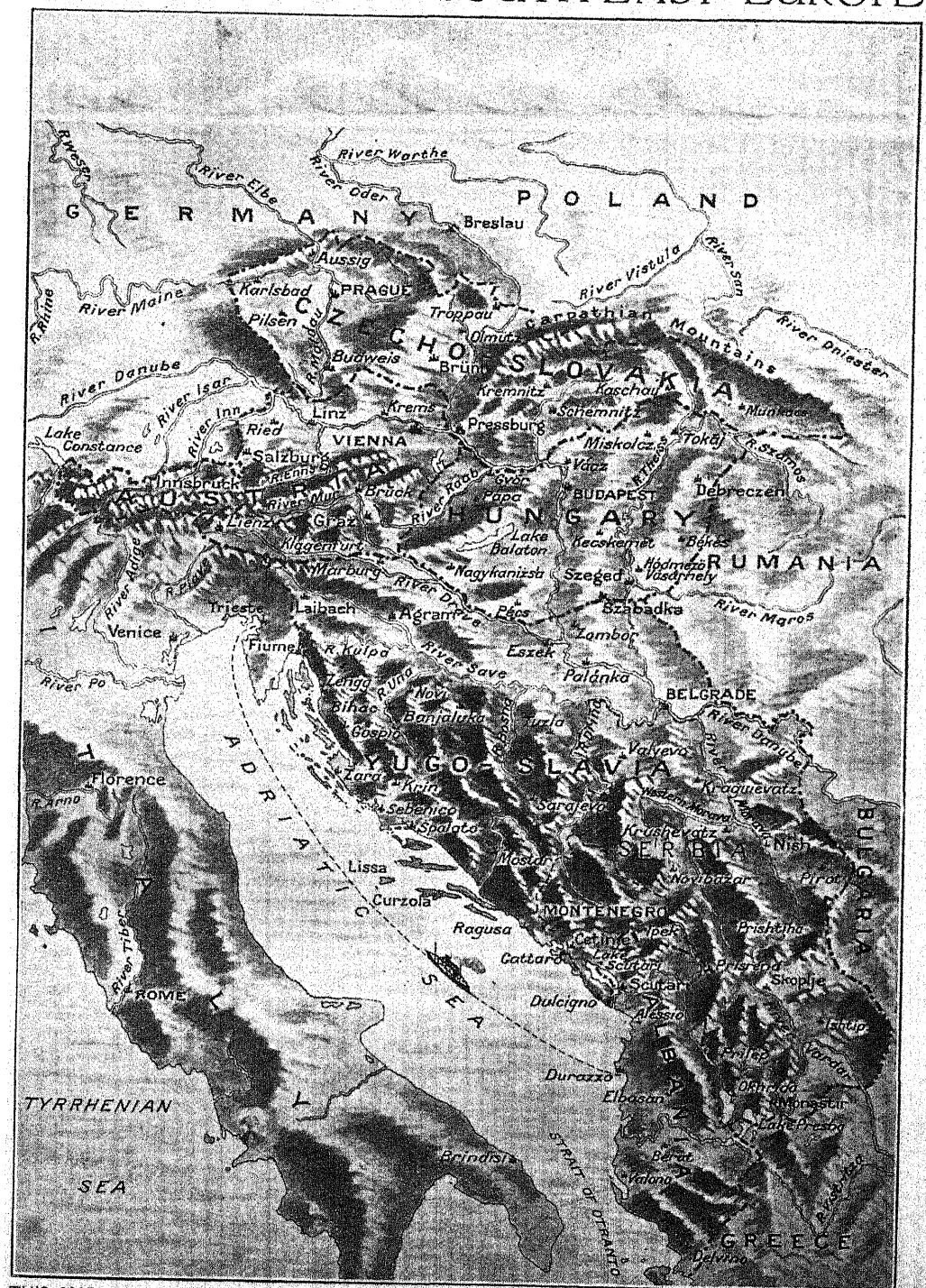
It is a mountainous land bordering the Adriatic Sea to the northward of Greece and southward of the Dalmatian part of Yugo-Slavia. As a region where two-thirds of the people are Moslems, the country was closely linked with Turkey, and many Albanians formed a prominent part of the Turkish army in the old days.

The Albanians are a brave and warlike race, living in clans under local chieftains in the midst of their barren and inaccessible mountains. No great nation has coveted their bare and unorganised land, with its boldly irresponsible people, who have no system of law beyond what their religion ordains.

The country is about three times as large as Wales, and has an estimated population of about a million. The people are divided by some differences of race, language, and religion into two groups—the Ghegs in the north and the Tosks in the south—but they are sufficiently united to be admitted to membership in the League of Nations. They are governed in local combinations by what are called regents, who are chosen by various religious groups.

Roads are the great need of the country. Cattle-rearing is the chief occupation. Tobacco is grown. Tirana (12,000), Scutari (32,000), and Elbasan (13,000) are the largest towns. The chief ports are Durazzo (5000), and Valona (6000).

5 COUNTRIES OF SOUTH-EAST EUROPE



THIS MAP SHOWS AUSTRIA, HUNGARY, CZECHO-SLOVAKIA, YUGO-SLAVIA AND ALBANIA WITH THEIR MOUNTAINS, RIVERS AND CHIEF TOWNS

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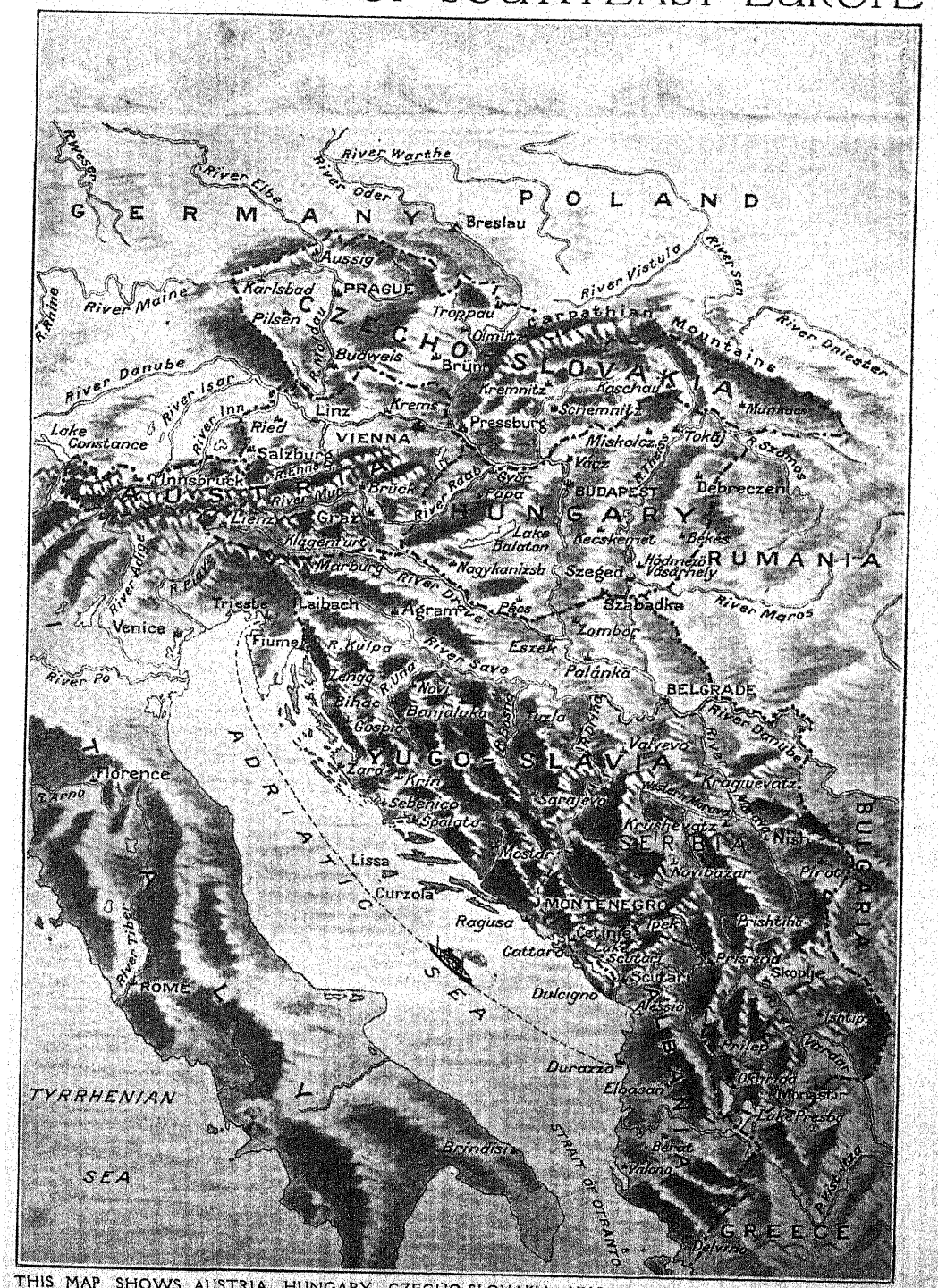
The country is about three times as large as Wales, and has an estimated population of about a million. The people are divided by some differences of race, language, and religion into two groups—the Ghegs in the north and the Tosks in the south—but they are sufficiently united to be admitted to membership in the League of Nations. They are governed in local combinations by what are called regents, who are chosen by various religious groups.

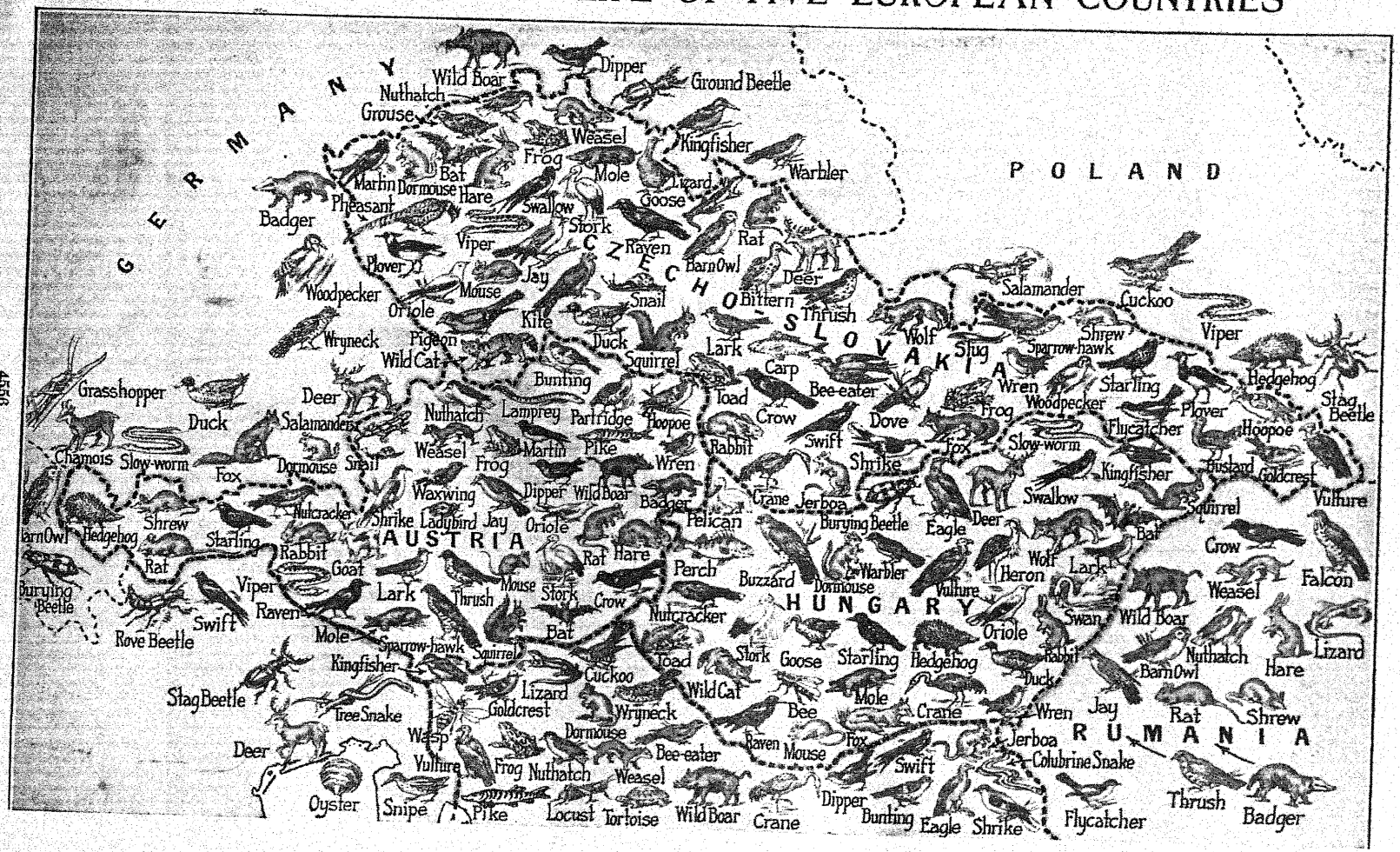
Roads are the great need of the country. Cattle-rearing is the chief occupation. Tobacco is grown. Tirana (12,000), Scutari (32,000), and Elbasan (13,000) are the largest towns. The chief ports are Durazzo (5000), and Valona (6000).

5 COUNTRIES OF SOUTH-EAST EUROPE



THIS MAP SHOWS AUSTRIA, HUNGARY, CZECHO-SLOVAKIA, YUGO-SLAVIA AND ALBANIA WITH THEIR MOUNTAINS, RIVERS AND CHIEF TOWNS

THE VARIED ANIMAL LIFE OF FIVE EUROPEAN COUNTRIES



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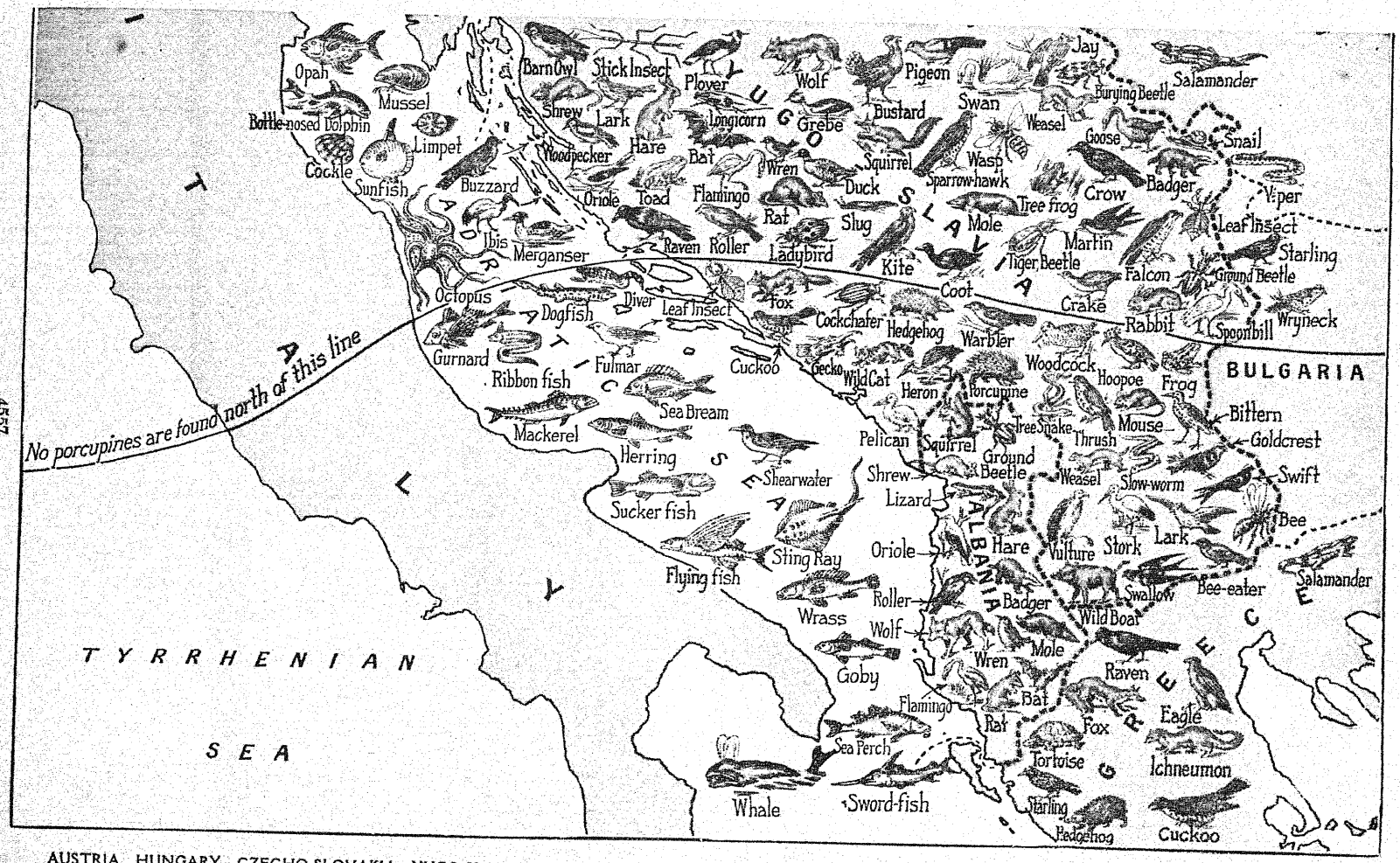
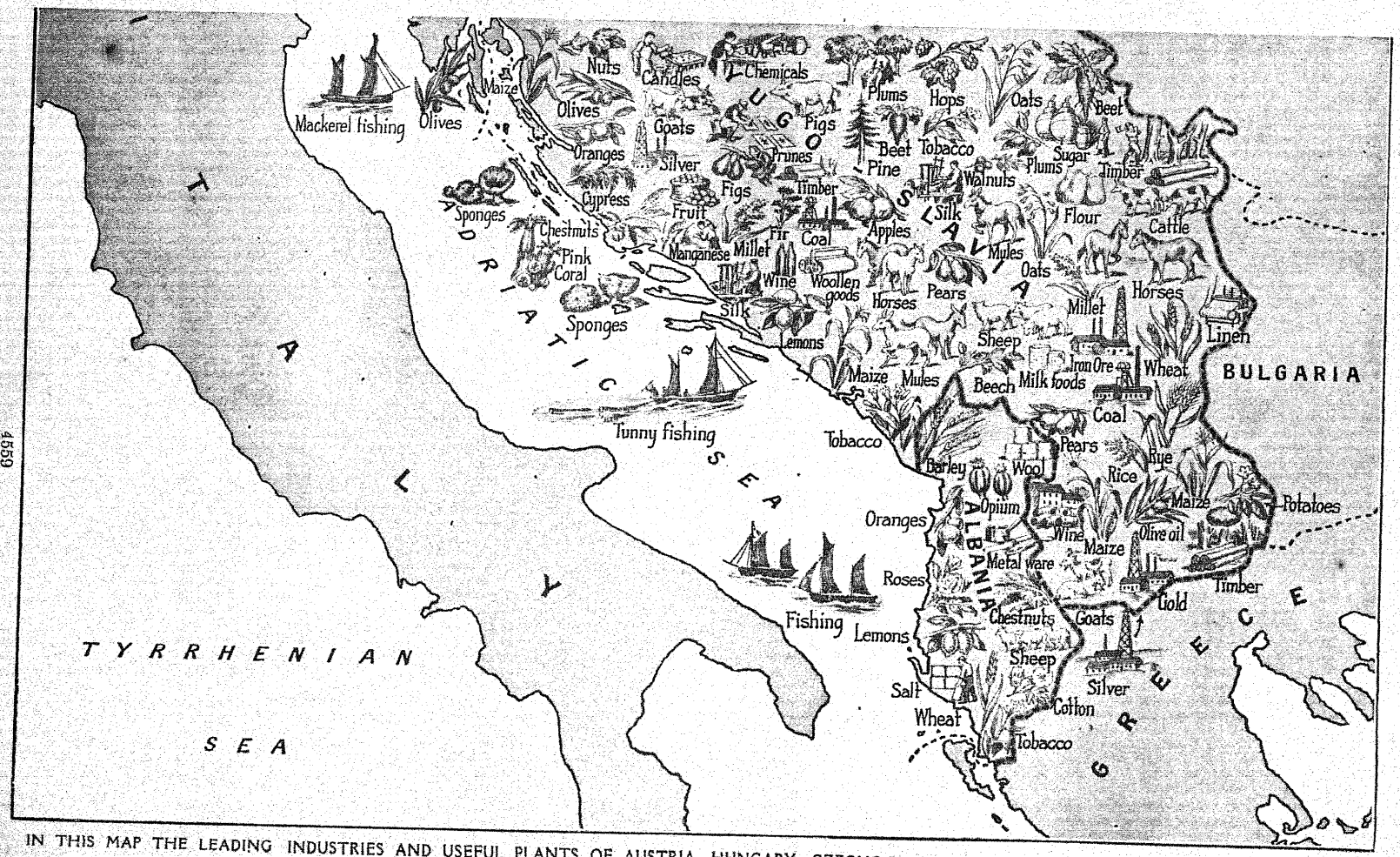


AUSTRIA, HUNGARY, CZECHO-SLOVAKIA, YUGO-SLAVIA AND ALBANIA WITH THEIR GREAT VARIETY OF ANIMAL LIFE BY LAND AND WATER

FIVE EUROPEAN COUNTRIES WITH THEIR CHIEF INDUSTRIES AND PLANTS



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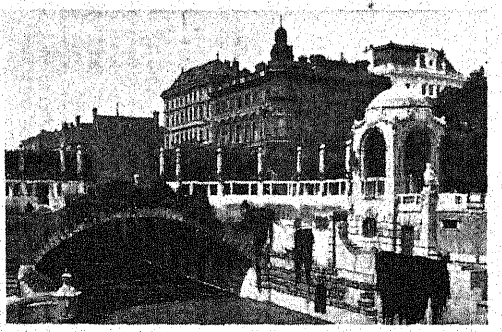
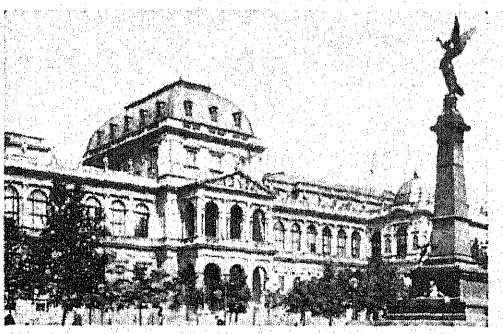
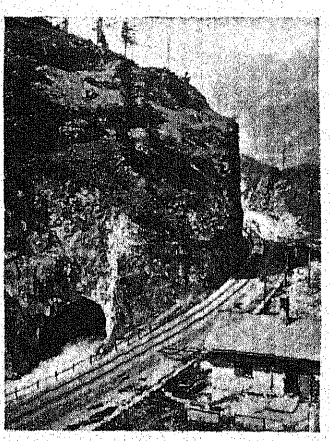
IN THIS MAP THE LEADING INDUSTRIES AND USEFUL PLANTS OF AUSTRIA, HUNGARY, CZECHO-SLOVAKIA. YUGO-SLAVIA, AND ALBANIA ARE SHOWN



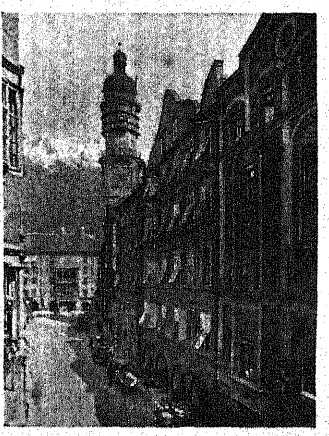
A BRIDGE IN THE STADT PARK, VIENNA



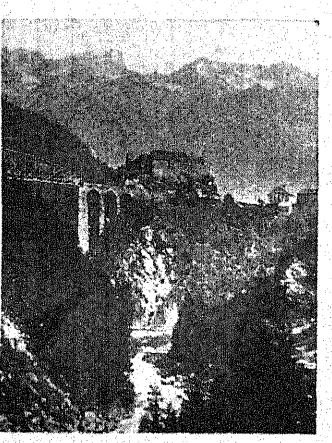
VIENNA UNIVERSITY



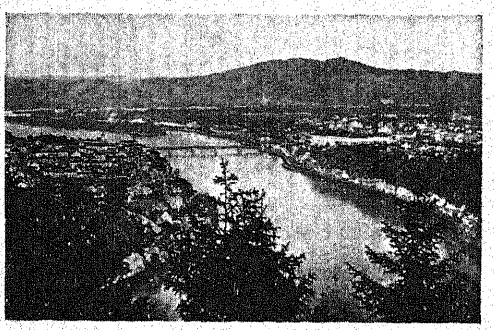
BRENNER PASS IN THE TIROL



A STREET IN INNSBRUCK

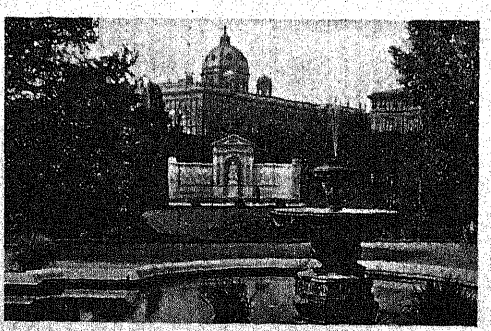


A RUGGED TIROL SCENE

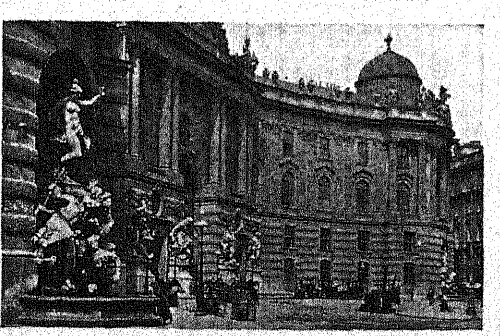


THE TOWN OF LINZ IN AUSTRIA

THE TOWN OF SALZBURG IN AUSTRIA

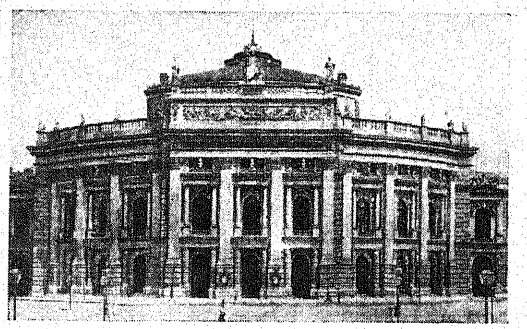


THE VOLKSGARTEN IN VIENNA

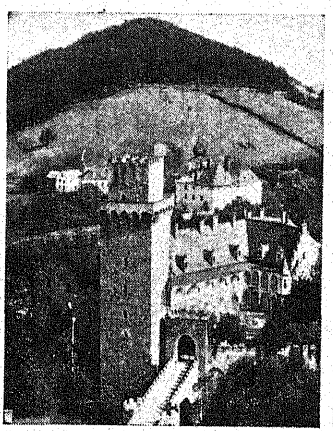


THE OLD ROYAL PALACE IN VIENNA

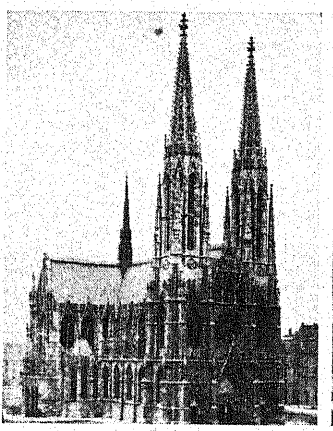
VIENNA OPERA HOUSE, THE LARGEST IN THE WORLD



THE HOFBURG THEATRE IN VIENNA



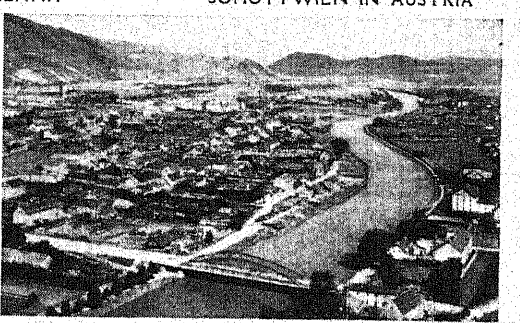
THE CASTLE OF WAIDHOFEN-ZELL, IN AUSTRIA



THE VOTIVE CHURCH IN VIENNA

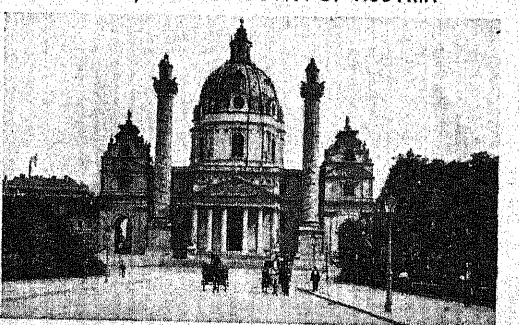
THE PICTURESQUE VILLAGE OF SCHOTTWIEN IN AUSTRIA

MARIA-WORTH, A VILLAGE IN AUSTRIA



GRAZ, A LARGE TOWN OF AUSTRIA

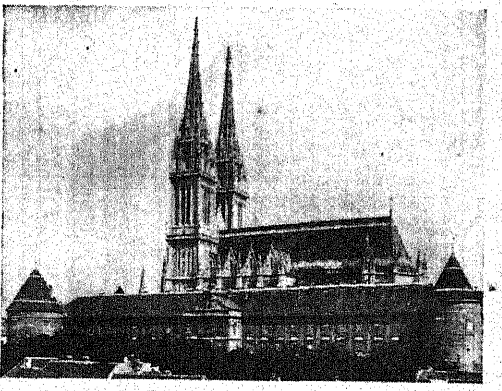
THE MUSEUM IN VIENNA



THE CHARLES CHURCH IN VIENNA

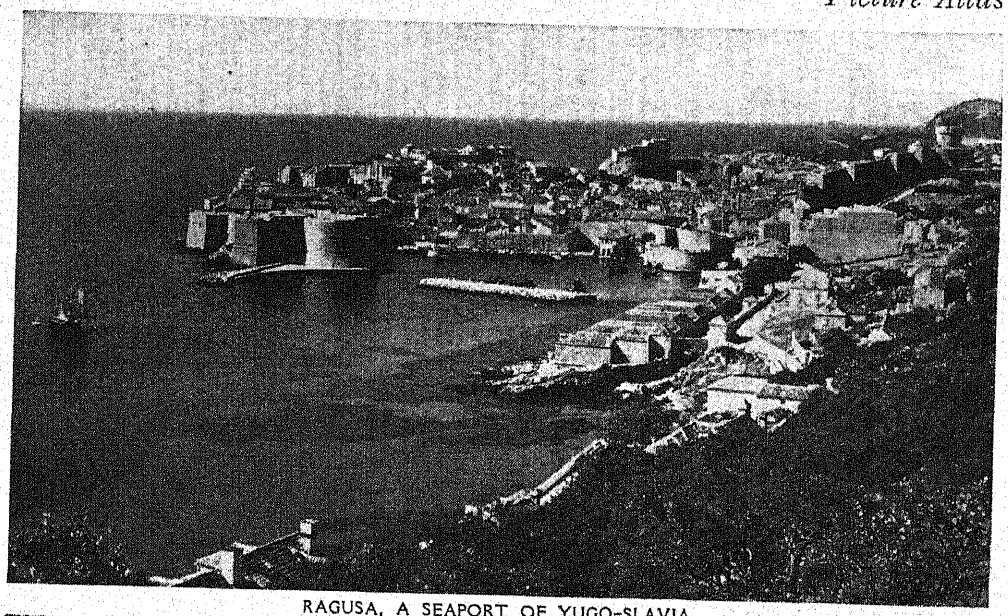
THE SEAPORT TOWN OF CATTARO ON THE ADRIATIC

THE OLD ROMAN BRIDGE AT MOSTAR, HERZEGOVINA



ZAGREB CATHEDRAL, YUGO-SLAVIA

BELGRADE, THE CAPITAL OF YUGO-SLAVIA

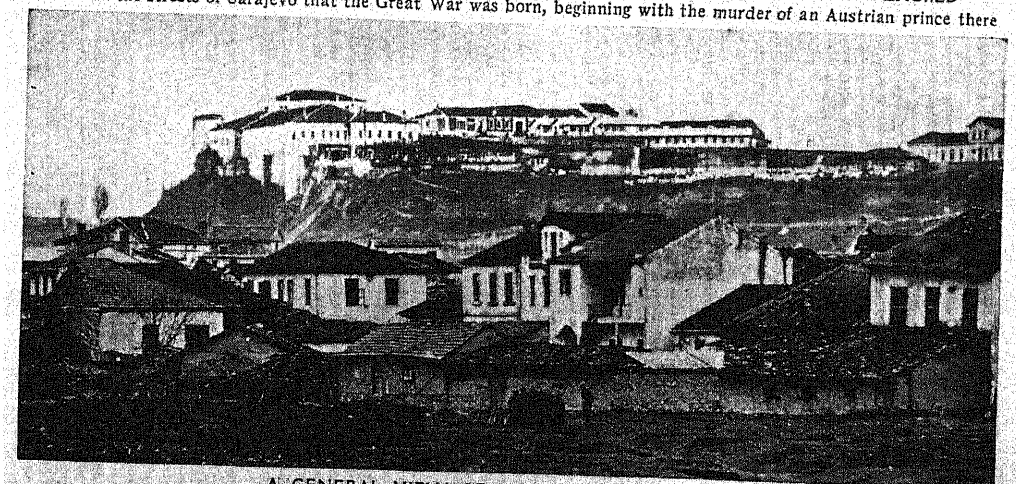


RAGUSA, A SEAPORT OF YUGO-SLAVIA

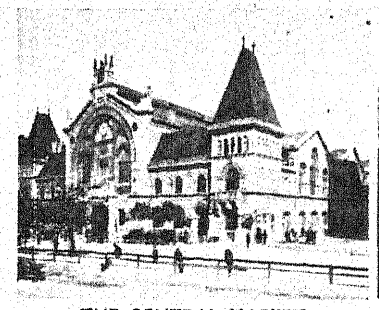
A STREET SCENE IN SARAJEVO, YUGO-SLAVIA

THE NATIONAL THEATRE AT ZAGREB

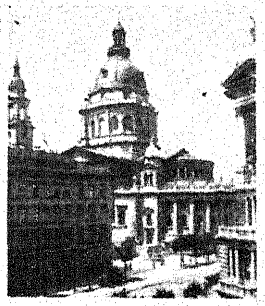
It was in the streets of Sarajevo that the Great War was born, beginning with the murder of an Austrian prince there



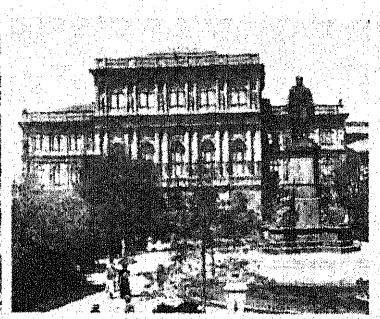
A GENERAL VIEW OF USKUB, IN YUGO-SLAVIA



THE CENTRAL MARKET, BUDAPEST

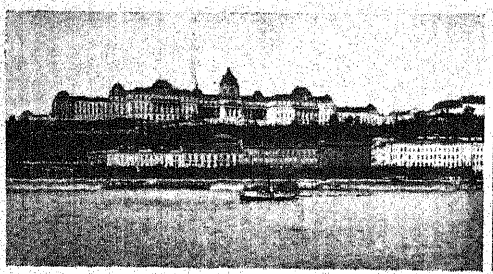


THE BASILICA, BUDAPEST

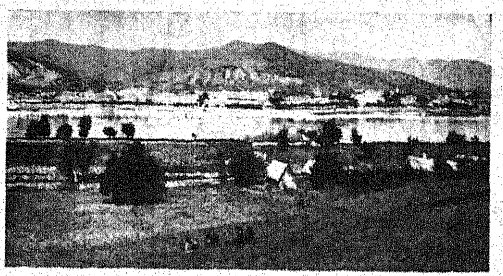


THE ACADEMY OF SCIENCES, BUDAPEST

THE RIVER DANUBE AS IT FLOWS THROUGH BUDAPEST, CAPITAL OF HUNGARY



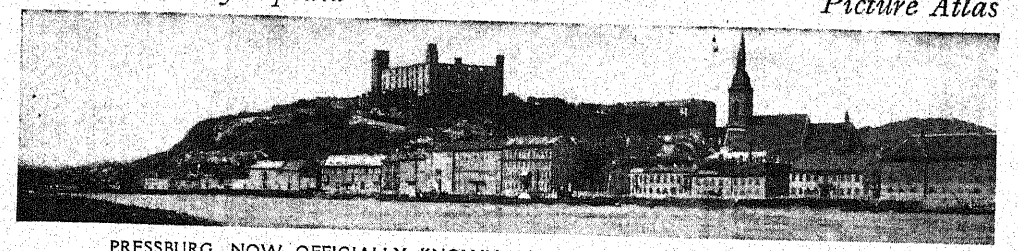
THE ROYAL PALACE AT BUDAPEST



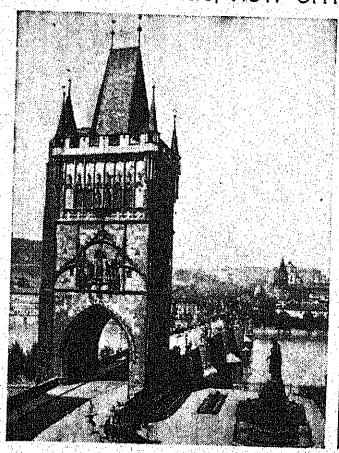
ORSOVA ON THE DANUBE

RAAB, A TOWN IN HUNGARY

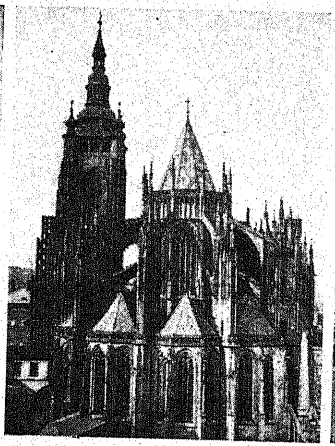
A STREET IN STUHLWEISSENBERG, IN HUNGARY



PRESSBURG, NOW OFFICIALLY KNOWN AS BRATISLAVA, IN CZECHO-SLOVAKIA



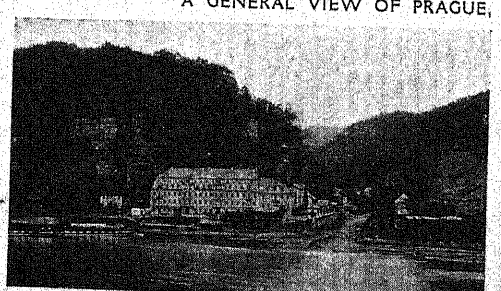
THE CHARLES BRIDGE ACROSS THE MOLDAU, AT PRAGUE



THE CATHEDRAL OF SAINT VITUS, PRAGUE

AN OLD CHURCH IN PRAGUE

A GENERAL VIEW OF PRAGUE, CAPITAL OF CZECHO-SLOVAKIA



HERRNSKRETSCHEN, CZECHO-SLOVAKIA

THE HRADCANY, OR CAPITOL, OF PRAGUE

A MAN AND WOMAN OF YUGO-SLAVIA

A PEASANT GIRL OF CZECHO-SLOVAKIA

A HUNGARIAN FAMILY IN QUAINT COSTUME

AN AUSTRIAN PEASANT

WORKGIRLS OF VIENNA IN BOHEMIAN COSTUME

AN OLD AUSTRIAN

MONTINEGRIN PEASANTS

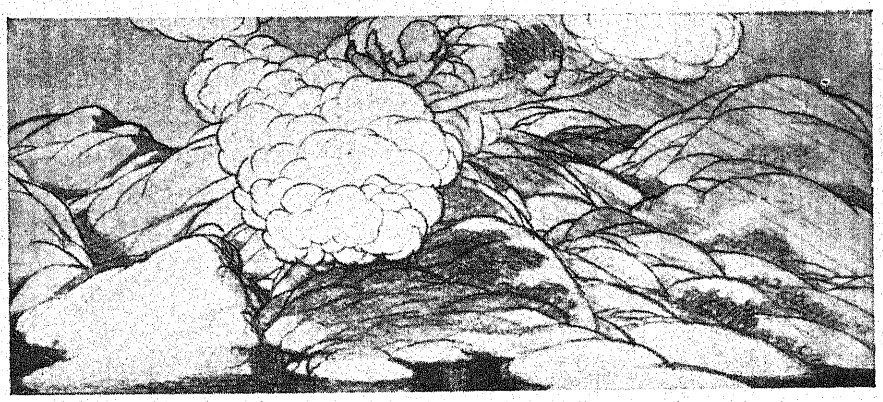
HUNGARIAN GOOSEHERDS

A YUGO-SLAVIAN FARMER AND HIS WIFE

A BOHEMIAN APPLE WOMAN IN VIENNA

AN OLD PEASANT OF CZECHO-SLOVAKIA

The pictures on these pages are by Messrs. Cutler, R.N.A., McLeish, York & Son, and others



THE CLOUD

In any selection from the great English poet Shelley this poem always finds a place, as it is at once characteristic of the author and presents in the most finished poetic style, with a rare wealth of imagery and pictorial truth, a simple scientific explanation of how clouds are formed. We could tell in a very few words, of course, the process of Nature which results in the formation and the dissolving of a cloud, but the poet has here chosen to show us that these simple facts, so well known to most of us, can be clothed with beautiful words which invest them with imaginative grandeur.

I BRING fresh showers for the thirsting flowers
From the seas and the streams;
I bear light shade for the leaves when laid
In their noonday dreams.
From my wings are shaken the dews that waken
The sweet buds every one,
When rocked to rest on their mother's breast
As she dances about the sun.
I wield the flail of the lashing hail,
And whiten the green plains under;
And then again I dissolve it in rain,
And laugh as I pass in thunder.

I SIFT the snow on the mountains below,
And their great pines groan aghast;
And all the night 'tis my pillow white,
While I sleep in the arms of the blast.
Sublime on the towers of my skyey bowers,
Lightning, my pilot, sits;
In a cavern under is fettered the thunder;
It struggles and howls at fits.
Over earth and ocean, with gentle motion,
This pilot is guiding me,
Lured by the love of the genii that move
In the depths of the purple sea;
Over the rills, and the crags, and the hills,
Over the lakes and the plains,
Wherever he dream, under mountain or stream,
The Spirit he loves remains;
And I all the while bask in heaven's blue smile,
Whilst he is dissolving in rains.

THE sanguine sunrise, with his meteor eyes,
And his burning plumes outspread,
Leaps on the back of my sailing rack
When the morning star shines dead;
As on the jag of a mountain crag,
Which an earthquake rocks and swings,
An eagle, alit, one moment may sit
In the light of its golden wings;
And when sunset may breathe, from the lit sea beneath,
Its ardours of rest and of love,
And the crimson pall of eve may fall
From the depths of heaven above,
With wings folded I rest on mine airy nest,
As still as a brooding dove.

THAT orbed maiden, with white fire laden,
Whom mortals call the moon,
Glides glimmering o'er my fleece-like floor
By the midnight breezes strewn;
And wherever the beat of her unseen feet,
Which only the angels hear,
May have broken the woof of my tent's thin roof
The stars peep behind her and peer;
And I laugh to see them whirl and flee,
Like a swarm of golden bees,
When I widen the rent in my wind-built tent,

Till the calm rivers, lakes, and seas,
Like strips of the sky fallen through me on high,
Are each paved with the moon and these.

I bind the sun's throne with a burning zone,
And the moon's with a girdle of pearls;
The volcanoes are dim, and the stars reel and swim,
When the whirlwinds my banner unfurl.
From cape to cape with a bridge-like shape,
Over a torrent sea,
Sunbeam-proof, I hang like a roof,
The mountains its columns be.
The triumphal arch through which I march
With hurricane, fire, and snow,
When the powers of the air are chained to my chair,
Is the million-coloured bow;
The sphere-fire above its soft colours wove,
While the moist earth was laughing below.

I am the daughter of earth and water,
And the nursling of the sky;
I pass through the pores of the ocean and shores;
I change, but I cannot die.
For after the rain, when, with never a stain,
The pavilion of heaven is bare,
And the winds and sunbeams, with their convex gleams,
Build up the blue dome of air—
I silently laugh at my own cenotaph,
And out of the caverns of rain,
Like a child from the womb, like a ghost from the tomb.
I arise and unbuild it again.

THE NORTH AND THE SOUTH

Written in May, 1861, a month before she died, this is Mrs. Browning's last poem. She had lived long in Italy, and naturally compared the life and people of Southern and Northern Europe, each loved by her, but in a different way. Hans Andersen, the Danish writer for children, had come to Rome on a visit, and his presence charmed the poet into making this series of comparisons.

Now give us lands where the olives grow,
Cried the North to the South,
"Where the sun with a golden mouth can blow
Blue bubbles of grapes down a vineyard row,"
Cried the North to the South.

"Now give us men from the sunless plain,"
Cried the South to the North,
"By need of work in the snow and the rain,
Made strong and brave by familiar pain!"
Cried the South to the North.

"Give lucider hills and intenser seas,"
Said the North to the South,
"Since ever by symbols and bright degrees
Art, childlike, climbs to the dear Lord's knees,"
Said the North to the South.

"Give strenuous souls for belief and prayer,"
Said the South to the North,
"That stand in the dark on the lowest stair,
While affirming of God He is certainly there!"
Said the South to the North.

"Yet oh for the skies that are softer and higher!"
Sighed the North to the South;
"For the flowers that blaze, and the trees that aspire,
And the insects made of a song or a fire!"
Sighed the North to the South.

"And oh for a seer to discern the same!"
Sighed the South to the North;
"For a poet's tongue of baptismal flame
To call the tree or the flower by its name!"
Sighed the South to the North.

The North sent therefore a man of men
As a grace to the South,
And thus to Rome came Andersen.
"Alas, but must you take him again?"
Said the South to the North.

TO A BUTTERFLY

Wordsworth, in these pretty verses to a butterfly, gives us the proper point of view from which we ought to regard one of the loveliest of all created things. We can hardly read this poem and afterwards go chasing butterflies.

I've watched you now a full half-hour,
Self-poised upon that yellow flower;
And, little butterfly, indeed
I know not if you sleep or feed.
How motionless! not frozen seas
More motionless! and then
What joy awaits you when the breeze
Hath found you out among the trees,
And calls you forth again!

This plot of orchard ground is ours:
My trees they are, my sister's flowers.
Here rest your wings when they are weary,
Here lodge as in a sanctuary!
Come often to us, fear no wrong;
Sit near us on the bough!
We'll talk of sunshine and of song,
And summer days when we were young;
Sweet childish days that were as long
As twenty days are now.

MY NATIVE VALE

Poets often delight in imagining how other people must feel, and in describing for them experiences that have never been their own. In this poem Samuel Rogers, who was a Londoner by birth and life-long residence, but travelled in Italy and wrote about it, tells us how he thinks an Italian must feel about the valley in which he was born.

DEAR is my little native vale ;
The ring-dove builds and murmurs there ;
Close by my cot she tells her tale
To every passing villager.
The squirrel leaps from tree to tree,
And shells his nuts at liberty.

In orange groves and myrtle bowers,
That breathe a gale of fragrance round,
I charm the fairy-footed hours
With my loved lute's romantic sound ;
Or crowns of living laurel weave
For those that win the race at eve.

The shepherd's horn at break of day,
The ballet dance in twilight glade,
The canzonet and roundelay
Sung in the silent greenwood shade ;
These simple joys, that never fail,
Shall bind me to my native vale.

THE CHILDREN'S HOUR

This poem by H. W. Longfellow pictures for us with real feeling one of the greatest joys of life, the story-telling hour with the little ones. The story of the Bishop of Bingen, mentioned in the fourth verse, is told at length in Southey's poem Bishop Hatto, printed on page 4181 of this book.

BETWEEN the dark and the daylight,
when the night is beginning to lower,
Comes a pause in the day's occupations
that is known as the Children's Hour.
I hear in the chamber above me the patter
of little feet,
The sound of a door that is opened, and
voices soft and sweet.

From my study I see in the lamplight,
descending the broad hall stair,
Grave Alice, and laughing Allegra, and
Edith with golden hair.
A whisper and then a silence ; yet I know
by their merry eyes
They are plotting and planning together
to take me by surprise.

A sudden rush from the stairway, a sudden
raid from the hall !
By three doors left unguarded they enter
my castle wall !
They climb up into my turret o'er the arms
and back of my chair ;
If I try to escape they surround me ; they
seem to be everywhere.

They almost devour me with kisses, their
arms about me entwine,
Till I think of the Bishop of Bingen in his
Mouse-tower on the Rhine !
Do you think, oh, blue-eyed banditti, because
you have scaled the wall
Such an old moustache as I am is not a
match for you all ?

I have you fast in my fortress, and will
not let you depart,
But put you down into the dungeon in the
round-tower of my heart.
And there will I keep you for ever, yes,
for ever and a day,
Till the walls shall crumble to ruin and
moulder in dust away.

I SAW THE BEAUTY OF THE WORLD

How can we know about God ? Some people think such knowledge comes from reading the Bible or other good books or hearing good people talk of God. They are right to some extent ; but there are other ways of knowing Him. He is not far from any one of us. In these thoughtful verses the poet William Brighty Rands tells us of ways but dimly understood, yet very real, in which God speaks to our hearts and writes His name through the beauty of the world

I SAW the beauty of the world
Before me like a flag unfurled,
The splendour of the morning sky,
And all the stars in company ;
I thought : How beautiful it is !
My soul said : There is more than this

I saw the pomps of death and birth,
The generations of the earth ;
I looked on saints and heroes crowned
And love as wide as heaven is round ,
I thought : How wonderful it is !
My soul said : There is more than this.

Sometimes I have an awful thought
That bids me do the thing I ought ;
It comes like wind, it burns like flame ;
How shall I give that thought a name ?
It draws me like a loving kiss ;
My soul says : There is more than this.

I dreamed an angel of the Lord,
With purple wings and golden sword,
And such a splendour in his face
As made a glory in the place ;
I thought : How beautiful he is !
My soul said : There is more than this.

That angel's Lord I cannot see
Or hear, but He is Lord to me ;
And in the heavens, and earth, and skies,
The good which lives till evil dies,
The love I cannot understand,
God writes His name with His own hand

THE BUCKLE

A pretty example of the dainty muse of Walter De La Mare as it finds expression in his delightful Songs of Childhood.

I HAD a silver buckle,
I sewed it on my shoe,
And 'neath a sprig of mistletoe
I danced the evening through!

I had a bunch of cowslips,
I hid them in a grot
In case the elves should come by night
And me remember not.

I had a yellow riband,
I tied it in my hair
That, walking in the garden,
The birds might see it there.

I had a secret laughter,
I laughed it near the wall;
Only the ivy and the wind
May tell of it at all.

THE VOICE OF SPRING

Mary Howitt and her husband, William Howitt, were well-known in their day as authors and poets, and both wrote many useful books and good poems especially for children. Mary Howitt died in 1888 in her 89th year. The Voice of Spring is a sweet and pretty poem, and if we will only look around us when the spring days are here we shall see those signs of the coming summer which, as the poet puts it, is the voice of Spring telling us of the good days coming.

SPRING, where are you tarrying now?
Why are you so long unfelt?
Winter went a month ago,
When the snows began to melt.

I am coming, little maiden,
With the pleasant sunshine laden,
With the honey for the bee,
With the blossom for the tree,
With the flower and with the leaf;
Till I come the time is brief.

I am coming, I am coming!
Hark! the little bee is humming;
See! the lark is soaring high
In the bright and sunny sky;
And the gnats are on the wing;
Little maiden, now is Spring!

See! the yellow catkins cover
All the slender willows over;
And on mossy banks so green
Starlike primroses are seen;
And their clustering leaves below
White and purple violets grow.

Hark! the little lambs are bleating,
And the cawing rooks are meeting
In the elms, a noisy crowd;
And all birds are singing loud;
And the first white butterfly
In the sun goes flitting by.

Little maiden, look around thee!
Green and flowery fields surround thee;
Every little stream is bright,
All the orchard trees are white,
And each small and waving shoot
Has for thee sweet flower or fruit.

Turn thy eyes to earth and heaven!
God for thee the Spring hath given;
Taught the birds their melodies,
Clothed the earth and cleared the skies
For thy pleasure or thy food;
Pour thy soul in gratitude!
So may'st thou 'mid blessings dwell:
Little maiden, fare thee well!

RULE, BRITANNIA!

This famous song, which is known wherever the British flag waves, was first sung in the year 1740, in a little play, or masque, performed before the Prince and Princess of Wales of that time. As the masque was written by two poets, James Thomson and David Mallet, the song has been claimed for both; but it is usually thought that Thomson, who was a good poet, if not a great one, was the author. It is not the finest poetry, but it is full of pride for Britain's greatness, and expresses thoughts we should all cherish.

WHEN Britain first, at Heaven's command,
Arose from out the azure main,
This was the charter of her land,
And guardian angels sang the strain:
Rule, Britannia! Britannia rule the waves!
Britons never shall be slaves.

The nations not so blest as thee
Must in their turn to tyrants fall;
Whilst thou shalt flourish, great and free,
The dread and envy of them all.

Still more majestic shalt thou rise,
More dreadful from each foreign stroke;
As the loud blast that tears the skies
Serves but to root thy native oak.

Thee haughty tyrants ne'er shall tame;
All their attempts to bend thee down
Will but arouse thy generous flame
And work their woe and thy renown.

To thee belongs the rural reign;
Thy cities shall with commerce shine;
All thine shall be the subject main,
And every shore it circles thine.

The Muses, still with freedom found,
Shall to thy happy coast repair;
Blest Isle, with matchless beauty crowned
And manly hearts to guard the fair.
Rule, Britannia! Britannia rule the waves!
Britons never shall be slaves.

THE DIALECT POEMS OF PARSON BARNES

The famous parson-poet of Dorset, William Barnes, was born in Dorsetshire on February 22, 1801. He lived there through a long life as a schoolmaster and clergyman, and died there on October 7, 1886. He has a memorial in Dorchester. His first poems on rural life and in the Dorsetshire dialect were published in 1844. Though they never had a widely popular reception his poems have been growing in fame ever since, and now are universally recognised as memorable examples of the genuine poetry of simple life. He tells of the lives and emotions of plain people with simplicity, humour, and pathos, and his writings will live after more ambitious verse has lost its charm, for his appeal is straight to the heart.

AN OLD FRIEND

Old friends and old times appealed very strongly to the loyal and tender heart of William Barnes, and in this poem he sings the joy of renewed companionship and confidence

Wold means old; drough, through

OH! when the friends we used to know
'V a-been a-lost vor years; an' when
Zome happy day do come to show
Their feäzen to our eyes ageän (*faces*)
Do meäke us look behind, John,
Do bring wold times to mind, John,
Do meäke hearts veel, if they be steel,
All warm, an' soft, an' kind, John.

When we do lose, all gaÿ an' young,
A vaïce that used to call woone's neäme,
An' after years ageän his tongue
Do sound upon our ears the seäme,
Do kindle love anew, John,
Do wet woone's eyes wi' dew, John,
As we do sheäke, vor friendship's seäke,
His vist an' vind en true, John.

What tender thoughts do touch woone's soul
When we do zee a meäd or hill
Where we did work, or plaÿ, or stroll,
An' talk wi vaïces that be still;
'Tis touchèn vor to treäce, John,
Wold times drough ev'ry pleäce, John;
But that can't touch woone's heart so much
As zome wold long-lost feäce, John.

MY LOVE IS GOOD

The lover's feeling that whatever his sweetheart does is sure to be right is here expressed simply and tenderly.

MY love is good, my love is feäir,
She's comely to behold, O,
In ev'ry thing that she do wear,
Altho' 'tis new or wold, O.
My heart do leäp to see her walk,
So straïght do step her veet, O,
My tongue is dum' to hear her talk,
Her vaïce do sound so sweet, O.
The flowery grôun' wi' floor o' green
Do bear but vew so good an' true.

When she do zit then she do seem
The feairest to my zight, O,
Till she do stan' an' I do deem
She's feäirest at her height, O.
An' she do seem 'ithin a room
The feäirest on a floor, O,
Till I ageän do zee her bloom'
Still feäirer out o' door, O,
Where flowery groun' wi' floor o' green
Do bear but vew so good an' true.

An' when the deäisies be a-pressed
Below her vootstep's waïght, O,
Do seem as if she looked the best
Ov all in walkèn gaït, O,
Till I do zee her zit upright
Behind the horse's neck, O,
A-holdèn wi' the raïn so tight
His tossèn head in check, O,
Where flowery groun' wi' floor o' green
Do bear but vew so good an' true.

I wish I had my own free land
To keep a ho'se to ride, O,
I wish I had a ho'se in hand
To ride en at her zide, O.
Vor if I wer as high in rank
As any duke or lord, O,
Or had the goold the richest bank
Can shovel vrom his horde, O,
I'd love her still if even then
She wer a leäser in a glen (*gleaner*).

WOAK HILL

In this poem, perhaps the most pathetic from his pen, William Barnes pictures a simple working man moving his family and furniture from Oak Hill, where his wife Mary has died. Though years have passed he feels her presence in the house caring for the children, and he fears she may feel left behind when they move from the house so he does all he can to show her that she is not slighted

Mid means may; to ho for means to care for.

WHEN sycamore leaves wer a-spreadèn
Green-ruddy in hedges,
Bezide the red doust o' the ridges (*dust*)
A-dried at Woak Hill (*oak*),

I packed up my goods, all a-sheenèn
Wi' long years o' handlèn,
On dousty red wheels ov a wagon
To ride at Woak Hill.

The brown thatchen rwof o' the dwellèn
I then wer a-leävèn
Had sheltered the sleek head o' Meäry,
My bride at Woak Hill.

But now vor zome years her light voot-vall
'S a-lost vrom the vloorèn.
Too soon vor my jaÿ an' my childern (*joy*)
She died at Woak Hill.

But still I do think that in soul
She do hover about us;
To ho vor her motherless childern,
Her pride at Woak Hill.

Zoo—lest she should tell me hereafter
I stole off 'ithout her,
An' left her, uncalled at house-riddèn,
To bide at Woak Hill—

I called her so fondly, wi' lippèns
All soundless to others,
An' took her wi' aïr-reachèn hand
To my zide at Woak Hill.

On the road I did look round, a-talkèn
To light at my shoulder,
An' then led her in at the doorway,
Miles wide vrom Woak Hill.

An' that's why vo'k thought vor a season
My mind wer a-wandrèn
Wi' sorrow, when I wer so sorely
A-tried at Woak Hill.

But no; that my Meäry mid never
Behold herzelf slighted
I wanted to think that I guided
My guide vrom Woak Hill.

THE OLD FOLK DEAD

Here again is the note of pathos in thinking of the old folks who are dead, especially when one is also getting old. The passage of time is beautifully pictured. The grandmother's smile reappears on the grandchild's features, and the young saplings have become trees too large for arms to clasp

Me'th means mirth; nesh, tender; and knaps, hillocks

My days, wi' wold vo'k all but gone
An' childern now a-comèn on,
Do bring me still my mother's smiles
In light that now do show my chile's;
An' I've a-sheäred the wold vo'k's me'th,
Avore the burnèn Chris'mas he'th,
At friendly bwoards, where feäce by feäce,
Did year by year gi'e up its pleäce,
An' leäve me here, behind, to tread
The ground a-trod by wold vo'k dead.

But wold things be a-lost vor new,
An' zome do come, while zome do goo:
As withered beech tree leaves do cling
Among the nesh young buds o' spring;
An' frettèn worms ha' slowly wound
Droo beams the wold vo'k lifted sound,
An' trees they planted little slips
Ha' stems that noo two eärms can clip;
An' grey an' yollow moss do spread
On buildèns new to wold vo'k dead.

The backs of all our zilv'ry hills,
The brook that still do dreve our mills,
The roads a-climèn up the brows
O' knaps, a-screened by meäple boughs,
Wer all a-marked in sheäde an' light
Avore our wolder fathers' zight,
In zunny days, a-gied their hands
For happy work, a-tillèn lands
That now do yield their childern bread
Till they do rest wi' wold vo'k dead.

But livèn vo'k a-grievèn on
Wi' lwonesome love vor souls a-gone
Do zee their goodness, but do vind
All else a-stealèn out o' mind,
As aïr do meäke the vurthest land
Look feäirer than the vield at hand;
An' zoo, as time do slowly pass,
So still's a sheäde upon the grass;
Its wid'nèn speäce do slowly shed
A glory roun' the wold vo'k dead.

MARY WEDDED

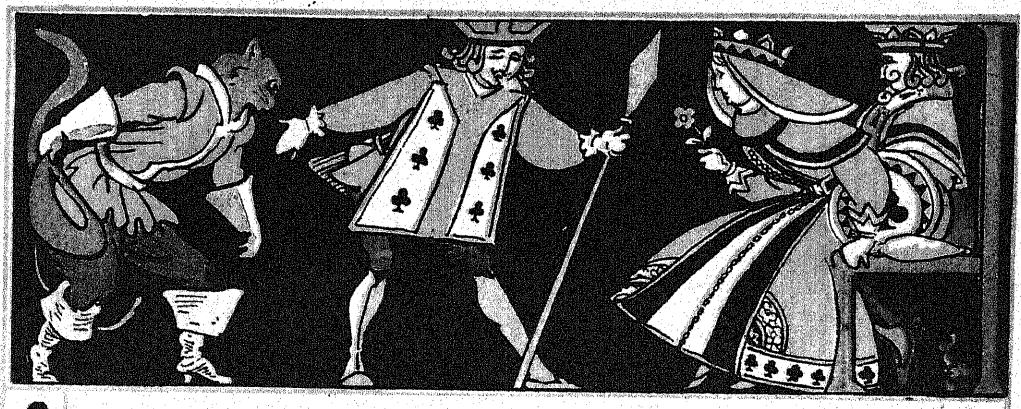
Many parents have felt the loss from the house of a married daughter as not far removed from anguish, and here William Barnes puts the feeling into tender verse. No wedding holiday festivities can allay the dulness of loss.

The zun can zink, the stars mid rise,
An' woods be green to sheenèn skies;
The cock mid crow to mornèn light,
An' workvo'k zing to vallèn night;
The birds mid whissle on the spraÿ,
An' childern leäp in merry plaÿ,
But ours is now a lifeless pleäce,
Vor we've a-lost a smilèn feäce—
Young Meäry Meäd o' merry mood,
Vor she's a-wooed an' wedded.

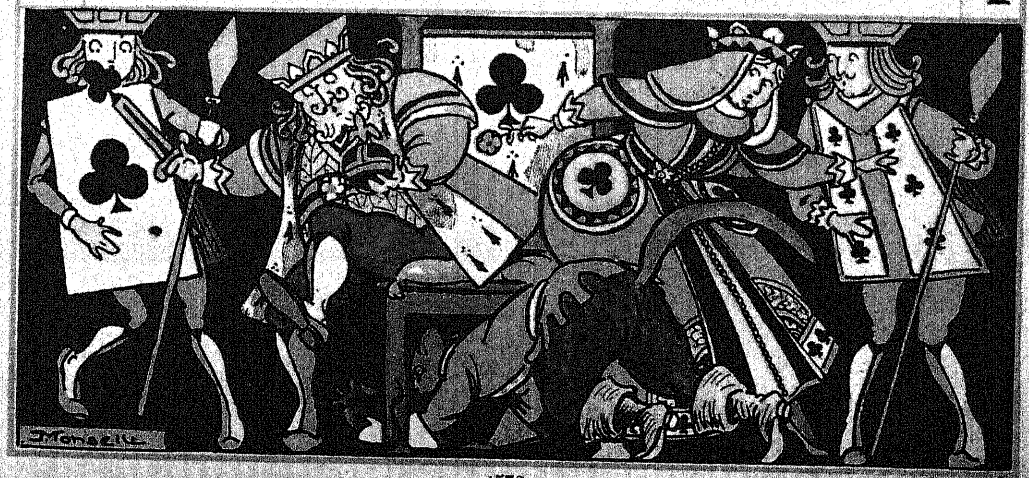
The dog that woonce wer glad to bear
Her fondlèn vingers down his heäir
Do leän his head ageän the vloor,
To watch, wi' heavy eyes, the door;
An' men she zent so happy hwome
O' Zadurdays do seem to come
To door wi' downcast hearts, to miss,
Wi' smiles below the clematis,
Young Meäry Meäd o' merry mood,
Vor she's a-wooed an' wedded.

The day she left her father's he'th,
Though sad, wer kept a day o' me'th,
An' dry-wheeled wagons' empty beds
Wer left 'ithin the tree-screened sheds;
An' all the hosses, at their eäse,
Went snortèn up the flow'ry leäse,
But woone, the smartest for the roäd,
That pulled away the dearest lwoad—
Young Meäry Meäd o' merry mood,
That wer a-wooed an' wedded.

PUSSY-CAT, WHERE HAVE YOU BEEN?



"Pus-sy-cat, pus-sy-cat, where have you been?" "I've been to Lon-don to vis-it the Queen." "Pus-sy-cat, pus-sy-cat, What did you there?" 'I caught a lit - tle mouse un - der the chair."

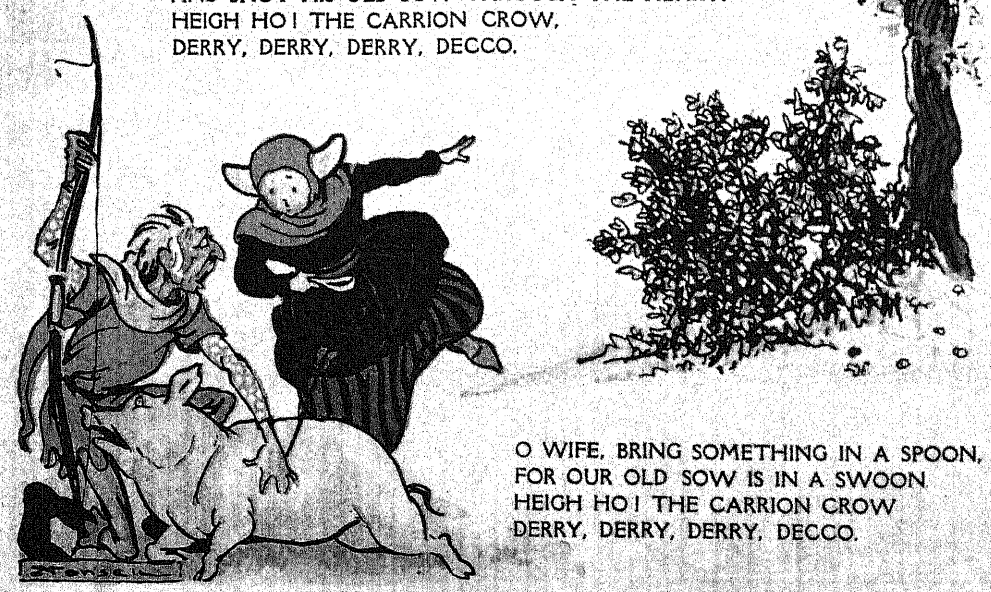


THE CARRION CROW

A CARRION CROW SAT ON AN OAK,
WATCHING A TAILOR SHAPE HIS CLOAK.
HEIGH HO! THE CARRION CROW,
DERRY, DERRY, DERRY, DECCO.

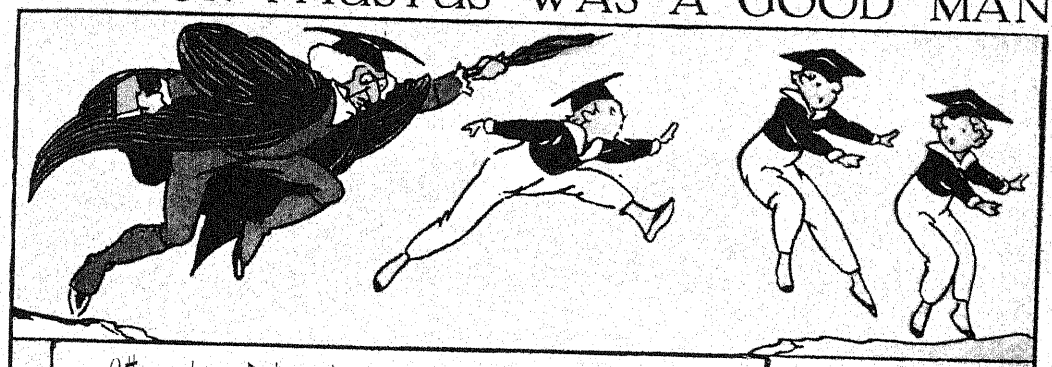
O WIFE, BRING ME MY OLD BENT BOW
THAT I MAY SHOOT YON CARRION CROW.
HEIGH HO! THE CARRION CROW,
DERRY, DERRY, DERRY, DECCO.

THE TAILOR SHOT, BUT HE MISSED HIS MARK,
AND SHOT HIS OLD SOW THROUGH THE HEART.
HEIGH HO! THE CARRION CROW,
DERRY, DERRY, DERRY, DECCO.



O WIFE, BRING SOMETHING IN A SPOON,
FOR OUR OLD SOW IS IN A SWOON.
HEIGH HO! THE CARRION CROW
DERRY, DERRY, DERRY, DECCO.

DOCTOR FAUSTUS WAS A GOOD MAN

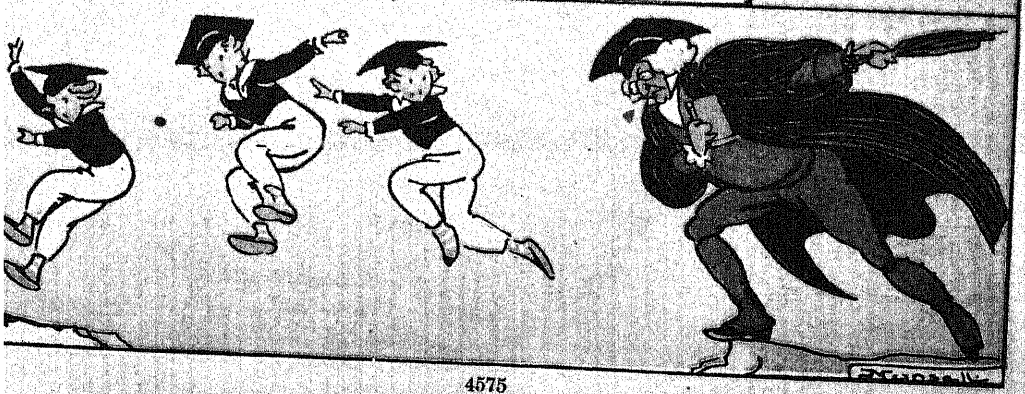


Doc - tor Faus - tus was a good man, He whipped his scho-lars

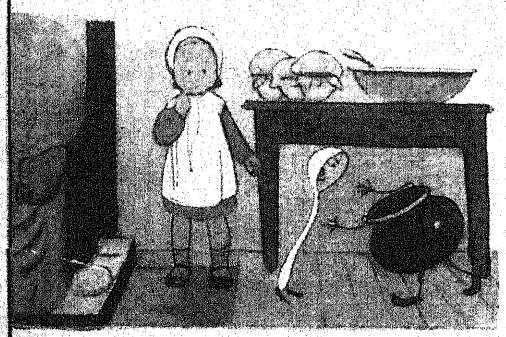
now and then, When he whipped, he made them dance,

Out of Eng-land in - to France Out of France and

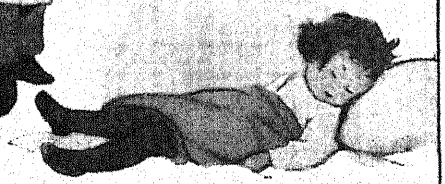
in -to Spain, And then he whipped them back a - gain.



ON Christmas Eve I turned the spit,
I burnt my fingers, I feel it yet.
The cock sparrow flew over the table,
The pot began to play with the ladle;
The ladle stood up like an angry man,
And vowed he'd fight the frying-pan;
The frying-pan behind the door
Said he never saw the like before;
And the kitchen clock I was going to wind
Said he never saw the like behind.



HOT cross buns!
Hot cross buns!
One a penny, two a penny,
Hot cross buns!
Hot cross buns!
Hot cross buns!
If you have no daughters,
Give them to your sons.



DIDDLE, diddle dumpling, my son John,
He went to bed with his stockings on;
One shoe off, and one shoe on,
Diddle, diddle dumpling, my son John.

BESSY BELL and Mary Gray,
They were two bonny lasses;
They built their house upon the lea
And covered it with rashes.

Bessy kept the garden gate,
And Mary kept the pantry;
Bessy always had to wait,
While Mary lived in plenty.

HUSH-A-BYE, baby,
Daddy is near;
Mamma is a lady,
And that's very clear.

GREAT A, little a,
This is pancake day;
Toss the ball high,
Throw the ball low,

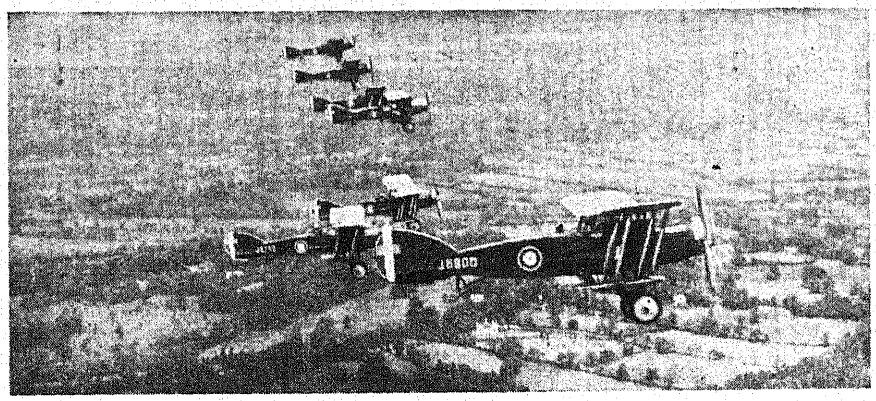
Those that come after
May sing heigh-ho!

LUCY LOCKET
Lost her pocket,
Kitty Fisher
Found it;
Nothing in it,
Nothing in it,
Just the binding
Round it.

LITTLE Miss Muffet,
She sat on a tuffet,
Eating of curds and whey;

There came a big spider
And sat down beside her,
And frightened Miss Muffet away.

The Story of Where Power Comes From, What It Does, & How It Works



THE AEROPLANE

IT seems wonderful to most of us at first sight that an engine can be driven up into the clouds, apparently riding on nothing. We are so used to living in the air, and seeing for miles through it, that we do not realise that air is matter, and that we live at the bottom of an ocean of air as real as an ocean of water.

Air is actually an elastic substance, more elastic than indiarubber, and rather sticky. What we have to get into our minds, if we are to understand how men can fly, is the idea that an airship or an aeroplane swims in an ocean, as a submarine in the sea. The great thing with an airship or aeroplane is to build it so as to give it the utmost capacity for floating, and the least resistance to the air it floats in.

We can all understand how an aeroplane flies by trying a simple experiment for ourselves. Take a Japanese fan, or any fan with a stiff handle like a stick and a stiff blade like a tennis racquet. Hold the fan at arm's length with the blade up and down vertically to the ground, and make a cut through the air, straight down. You will find that the blade goes down quite easily.

Now twist the handle so that the blade turns a little out of the straight so that the lower edge is a little to the right and the upper edge a little to the left, and make another cut straight down towards the ground. You will find at once that the blade of the fan, being at an angle to the line you are trying to make through the air, will pull over to the right, and that if you make it cut through the air rapidly it will be impossible for you to keep the fan from pulling off to the right. If you reverse the angle, turning the lower edge to the left, and then make a cut downwards, you will find that the fan will pull your hand to the left.

In a similar way, if you try to make a cut horizontally through the air, and turn upwards whichever edge of the fan is travelling in the direction of your movement, the fan will seek to rise; or if you turn the cutting edge of the fan downwards the fan will pull downwards. You will only be able to hold it horizontal by gripping the handle and using force.

An aeroplane consists of nothing more than a number of specially-designed fans driven through the air by engine power. Scientific experiments which have been carried on for the last hundred years and more have very nearly discovered what is the best possible shape for the fans which make up an aeroplane, but to all intents and purposes the airscrew, and the wings, and the elevators, and the rudder of an aeroplane are simply large or small

fans particularly suitable for the important work they have to do.

Once we have tried the experiment with the fan we can easily understand that if we take two fans and tie the handles together so that the blades are at a suitable angle, and if we then fix the handles to a rapidly revolving shaft, the effect of spinning the two fans round will be that they will try to pull the shaft along. That is exactly what is done by the airscrew of an aeroplane, which is commonly and wrongly called the propeller. The airscrew is fixed to the shaft of the engine and the engine turns the shaft round so quickly that the whole aeroplane is drawn along.

HOW THE ACTION OF THE AIRSCREW PULLS THE AEROPLANE ALONG

The action of the airscrew in the air is like that of an ordinary screw in a piece of wood, or of a bolt screwed into a hole. We are so used to living at the bottom of an ocean of air, and moving about in it freely, that we are apt to forget that air is a substance which can be felt, as much as water, or oil, or any other fluid.

Most aeroplanes are built with the engine right in the nose of a long body, which is called the fuselage. The engine being in the nose, with the airscrew pulling the aeroplane along, this type of machine is called a tractor aeroplane, just as we call a motor pulling wagons behind it a motor tractor.

Now if we imagine the fuselage of an aeroplane with the engine and airscrew in the nose, and if we put on each side of the fuselage a long thin fan—which in an aeroplane is called a wing—and if the airscrew pulls the aeroplane through the air fast enough, the wings will lift the plane upwards exactly as the fan tried to lift itself upwards when we tried to move it horizontally through the air.

TWO COMMON TYPES OF AEROPLANES AND HOW THEY GOT THEIR NAMES

There we have already the airscrew which pulls the aeroplane through the air and the wings which lift it. If the aeroplane has one wing on each side, thus forming what one might call a single deck, it is called a monoplane. If it has two wings on each side, making two decks, one above the other, it is called a biplane. The biplane is at present the most familiar of all types of aeroplane.

Having now pulled our aeroplane along, and having got it up in the air, we may see how it is controlled.

But first of all we may make a note of the fact that when it is on the ground it stands on two wheels, so that it can be run along the ground while it is reaching the speed at which the wings will lift it up. Between the fuselage and the wheels is an arrangement of steel tubes and rubber springs which is called the under-carriage. This under-carriage acts like the springs of a motor car, allowing the aeroplane to travel comfortably over the ground owing to the shock-absorbing qualities of the springs and the tyres.

At the extreme end of the fuselage, under the tail, is a curved piece of wood or metal called the tail-skid. This serves a double purpose. When the machine is standing on the ground it supports the tail, and when the machine is in the act of landing the tail-skid drops as soon as the wheels touch the earth and so acts as a brake by dragging along the ground.

When the aeroplane is once in the air it has to be controlled in three directions: up and down, to make it rise or descend; horizontally, to make it go in the right direction and keep on the right course; and laterally, to keep it from rolling from side to side and behaving unpleasantly for the passengers. All these directional movements are controlled by a series of small planes—or fans.

THE PARTS OF THE TAIL AND THE WORK THEY DO IN FLIGHT

On the tail end of the fuselage is a horizontal fixed plane, commonly called the tailplane; and above it, and sometimes below it, are vertical fixed planes, called fins. These horizontal and vertical planes act on the fuselage of the aeroplane in much the same way as the feathers on an arrow—they tend to keep the aeroplane flying straight. They also prevent it from swinging too suddenly up and down, or from side to side, when the pilot steers it in either direction.

The up-and-down control is operated by means of what is called the elevator. This consists generally of two planes, the front edge of each being attached like flaps by hinges to the rear edge of the fixed tail-plane, one flap being on each side of the fuselage.

The horizontal control, generally called the directional control, is done with a vertical rudder like the rudder of a boat The front edge of the rudder is attached by hinges to the end of the fuselage and to the rear edge of the fin which stands up

above the fuselage. The elevator and the rudder thus control the height of the machine and its direction. The elevator flaps are placed on each side of the fuselage because the rudder has to swing to and fro between them; otherwise it would be better to have a single elevator flap.

The lateral control, to regulate the rolling of the machine, is operated by flaps called ailerons, attached also by hinges to the rear edge of each wing, at the tips.

The elevator flaps and the ailerons are connected by wires to the pilot's control column, which aviators like to call the Joystick. The rudder is connected likewise by wires to a bar placed on the floor of the cockpit in front of the pilot, and the pilot works this bar with his feet.

THE THRILLING DASH OF THE AEROPLANE BEFORE IT RISES FROM THE GROUND

To understand the operation of the controls we may imagine a pilot taking an aeroplane off the ground. Having brought the machine out on to the aerodrome by the pull of the airscrew, the pilot gets it to a position where it faces the wind. He then opens the throttle of the engine so that the engine gives its full power, and the machine begins to move forward into the wind. As it begins to run the pilot pushes the control column forward and pulls down the elevator flaps, which tends to lift the tail of the machine.

The motion of the machine through the air, together with the stream of air blown back by the airscrew—the slipstream, as it is called—give the necessary lift, the tail-skid gets clear of the ground, and the machine begins to move rapidly forward. As the speed increases, so the lift on the wings increases, and the weight pressing down on the under-carriage and its wheels decreases. The pilot keeps the machine straight on the ground by the rudder, which is also being acted on by the high speed of the air, and the slipstream from the airscrew.

HOW THE PILOT TAKES HIS MACHINE UP INTO THE AIR

When he has reached the speed he wants the pilot pulls back the control column, which causes the rear edge of the elevator flaps to be raised. This has the effect of depressing the tail, which means that the rear (or trailing edge) of the wings is depressed, and the front edge (or leading edge) is raised at the same time that the tail of the fuselage is depressed and the nose is raised. This action increases the angle at which the wings attack the air, and so the wings grip more air, if we may put it that way. The extra amount of air on which the wings now operate, owing to the increased angle, gives the extra lift necessary to enable the machine to leave the ground and begin its flight.

If the machine has plenty of power, and is a really good flying machine, the pilot will then probably continue flying with the tail of the machine down and the nose up at quite a steep angle till he has reached the height he wants to fly at. When he has reached that height he will push the control column forward, pull down the elevators, lift the tail of the machine as much as may be desirable, and continue to fly at a level height.

When he wants to turn to the left he will kick his left foot forward, pushing forward the left-hand end of the rudder bar, which will pull the rudder over to the left. This will throw the tail of the machine to the right and so point the nose to the left, and will cause a left-hand turn. Similarly, kicking forward the right-hand end of the rudder bar will produce a turn to the right. It will be noticed that the rudder bar acts in exactly the opposite way to the handle-bar of a bicycle, for if we push the right-hand end of a handle-bar forward we turn to the left, and if we push the left-hand we turn to the right.

THE AILERONS THAT HELP TO KEEP THE AEROPLANE IN A VERTICAL POSITION

If in the course of flying a gust of wind hits the plane and causes it to heel over to the right, the pilot will instinctively move the control column to the left to keep the machine vertical. Moving the stick to the left pulls down the ailerons on the right wings, and causes extra lift to be given to the wings on that side. At the same time, as the ailerons on the opposite wings are coupled by wires, the opposite ailerons will be pulled upwards and so will tend to force the left wing downwards.

Similarly, if the machine rolls over to the left the pilot instinctively moves his stick to the right, pulls the left ailerons down and the right ailerons up, lifts the left wing, depresses the right wing, and so comes back to an even keel.

When the pilot wants to turn the plane sharply his natural impulse will be to lean over to the inside of the turn, as we lean over towards the inside of the turn when going round a corner on a bicycle. This is the correct way of turning an aeroplane in

the air, for it keeps the wings in a proper lifting position towards the air, just as a bicycle remains true to the surface when it goes round a corner on a properly banked track instead of on a flat road.

To make a left-hand turn a pilot will push his left foot forward and pull his stick over to the left. This will depress the left wing, raise the right wing, turn the rudder to the left, and so bring the aeroplane round on a properly banked left-hand turn. A banked turn to the right is made in a precisely similar way.

THE LONG GLIDE TO EARTH AT THE END OF A FLIGHT

When the pilot wishes to land he throttles down his engine so that the airscrew is no longer pulling, and pushes his stick forward so as to lift the tail and point the nose of the machine downwards. This is called gliding. At the same time he will steer the machine with the rudder in the precise direction he wishes it to go. When he gets near enough to the ground he will pull the stick back and drop the tail of the plane so that the angle of the wings to the air is increased, and the wings will then act so as to give the necessary lift without the help of the engine and the airscrew. As the airscrew is no longer pulling, the plane will glide more and more slowly till there is not enough speed to hold it in the air, and it will then sink on to the ground. A skilful pilot will see that the two wheels and the tail-skid will touch the ground at the same moment.

So far we have been looking at aeroplanes made of flat planes, like fans, but such an aeroplane would not actually be a good flying-machine, because it would not get the best value out of any of its fans.

In aeronautical language the various surfaces which we have imagined as being like fans are called *aerofoils*—from the French word *feuille*, for a leaf. This is because some early experimenters discovered that the leaves of certain trees carrying seed-pods were able to glide great distances when blown off the trees in autumn, so distributing the seed.

THE SUCTION ABOVE THE WING THAT IS STRONGER THAN THE PRESSURE BELOW

These early experimenters made the wings of their experimental gliding machines, which were aeroplanes without engines, on the lines of these leaves. That is how the word aerofoil came into use.

From experiments it was discovered that the best shape for an aerofoil was not flat like a fan, but rounded on the top (from front to back), and hollow beneath, or convex above and concave below.

What really supports an aeroplane is more the upward suction of the air above the wings, than the upward pressure of the air beneath the wing.

Both the speed and the lifting power of an aeroplane depends on the particular curve given both to the upper and lower surfaces of the wings. The curves used differ very much, according to whether the wing is intended for light or heavy machines.

Much in the same way the shape of the body, or fuselage, of an aeroplane has to be designed according to the speed expected; and the struts between the upper and lower planes, and the struts between the fuselage and the wheels in what is called the undercarriage, also have to be designed to present the least possible resistance to the air. This is what is called *streamlining*.

The idea of a streamlined body is to let air pass round it as smoothly as possible, and give a clear line to the air streams, so as to make it easy to pull through the air. The curious thing about a body which is streamlined for air is that the blunt end goes first, and the sharp end is at the tail.

WHY THE BLUNT END GOES FIRST IN A STREAMLINED BODY

The reason for this is much the same as the reason for the curved top surface of a wing. The air bounces off the blunt nose, and then curls back on to the long, thin tail end, so that the power which is expended in pushing the blunt nose through the air is returned by the air pressure inwards all round the tail end.

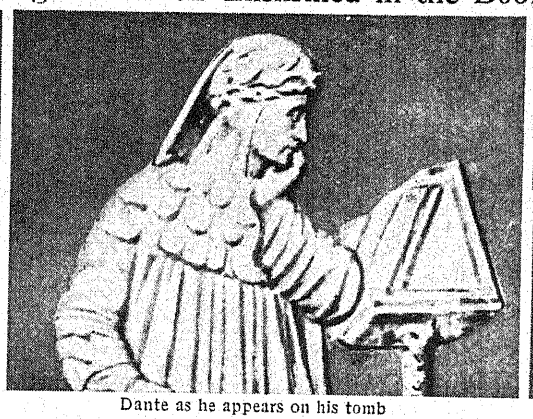
If the pointed end went first, the air would swirl round behind the blunt end, and cause a drag on it. We may see the same thing by taking a flat stick and trying to cut through water with it. If we cut edge-wise, we find that the stick leaves the water behind it comparatively undisturbed. If we pass it through the water flat, increasing the resistance, we find that the water swirls behind it as if it were trying to suck it backwards.

The efficiency of an aeroplane—whether we get the greatest possible value out of our engine-power, either in speed or in lifting—thus depends on two things: whether we have the right wing curve and the right streamlines.

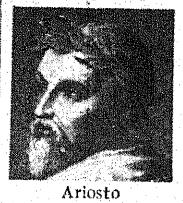
Pictures of Aeroplanes, showing all their parts, are given in Chapter 38 of Group 14.

Tasso

Boccaccio


Dante as he appears on his tomb

Petrarch


Ariosto

THE LITERATURE OF ITALY

THE literature of Italy once had a great influence over all civilised Europe.

That influence has not yet faded out; but it has not increased, nor has it ever been wholly sustained as time has passed. The reason is because its power comes only from its earliest stages. Italian literature sprang suddenly into a magnificent existence, but it has had no steady renewal. It shines brightly still, but only from afar.

Dante, who gave Italian its stupendous beginning, was contemporary with England's William Langland, who wrote Piers the Plowman. Tasso, who brought Italian to its glorious close, was contemporary with Shakespeare. Since Tasso no Italian writer has held a commanding position in the world of letters, and deeply impressed the human mind. There have been periods of positive triviality, and periods of serviceable commonplace. That is all. We must look back across three centuries to find Italy great in literature.

The Italian language reached its literary high-water mark with extraordinary rapidity. Its development was delayed by a quite natural devotion to Latin as the language of ancient Rome. Latin long continued as the sole language of the Christian Church, and, later, as the means of correspondence between nation and nation. All learned men knew it.

It was Dante, and Dante alone, who made Tuscan what Shakespeare called "choice Italian," and gave it a literary value that drew all Italy to it, though Italian dialects remain in common use to this day. Interest in Italian writers before and around Dante is confined to their relation to him. He was very generous in his acknowledgments of his debt to his old friend and master Brunetto Latini, and his admiration of his later contemporary Guido Cavalcanti; but neither of them, nor any of the poets who—like the sweet lyrical singer of the power of love, Cino da Pistoia—were imitating the songs of Provence, can be said to have called forth his genius. Dante stands first and alone, as one of the world's supreme poets, mighty in imagination and great in art, who once for all imposed his conception of the Italian language on Italy.

Dante Alighieri was born in May, 1265, at Florence, a man of good family. His education was such that he absorbed all the learning of his day, literary and scientific. Italy, and particularly Florence, was then divided between the two factions of the Guelphs and the Ghibellines, with frequently recurring civil war. Dante in his youth was a soldier in these wars, and shared the changeful fortunes of the Guelphs. When they became victorious,

and the government of Florence was reorganised, he was, at the age of 35, one of six civil officers, known as priors, who governed the city. But the Guelphs broke up into two parties, the Whites and the Blacks. Dante belonged to the Whites, and in 1302, the Blacks having gained power, the poet was exiled from the city, and condemned to be burned alive if he should return.

THE LONG EXILE OF DANTE FROM THE CITY HE LOVED

He never did return, though he often appealed for a reversal of his sentence. Till his death, in 1321, he wandered through the independent cities of Italy, defended by faithful friends. Sometimes he went from city to city on an embassy, and it was while acting in that capacity, between Venice and Ravenna, that he caught the fever from which he died.

Dante, though living in exile for twenty years on account of charges that were palpably false, was known everywhere as a notable man, a scholar, philosopher, and statesman, as well as a poet. In an age of violence and prejudice he had far-reaching thought. His ideal was to bring all Italy, and preferably all the world, under one temporal and one spiritual ruler, who together might rule all men in peace. The ruler was the Emperor, the spiritual leader was the Pope. This was his remedy for the wars that cursed the world under many ambitious rulers. But the great union of peoples never came near fulfilment, and it is as a poet that his name is immortal.

Dante stands in history between two great ages. Behind him was the medieval world, with the ancient world of Rome and Greece behind that. Before him was the dawn of the modern world. In his greatest poem, The Divine Comedy, he pictures for all succeeding time the medieval world he knew, but his mind was open to the influences of the freedom that was coming.

THE BEAUTIFUL BEATRICE WHO LIVED IN DANTE'S DREAMS

His first poem had been on the subject which all poets of his time made their chief theme—love. When he was quite a child, he admired greatly a girl named Beatrice. She was his own age—nine. It is doubtful whether he spoke to her more than once, but she lived long in his heart as the symbol of woman's beauty and purity. She married someone else and died young. To him she was the ideal woman, and in his work, Vita Nuova, or New Life, he tells the story of his love for his ideal of womanhood. The book was written before the chief troubles of the poet's life began.

His Divine Comedy was written—we do not know where or when—during the twenty years of his wandering exile. It is a picture of the future life of man as it was conceived in the Middle Ages.

The poet imagines himself conducted through Hell, through Purgatory, and through Paradise. In these places he sees men and women being dealt with hereafter, according to the things done by them in the body, whether they were good or evil. Many of the souls kept either in hopeless torture, or under purifying pain, or raised to heavenly places, were those who had been known to him during the changes of his harassed life.

Like Spenser's Faery Queene, the poem is full of hidden meanings, but it may also be read naturally. The poet pictures himself as lost in a forest, symbolising this world's cares, when he is met by the poet Virgil, who conducts him through the lower regions, where the vicious are punished; then upward through the seven terraces of Purgatory, where suffering is not hopeless; and finally he meets Beatrice, who is his guide through Paradise, where at last he has a momentary veiled vision of God, as his own will is entirely surrendered to the Divine purpose.

THE POET WHO FOUNDED AND PERFECTED OUR MODERN LYRICAL VERSE

And so Dante's imagination reaches a majesty unsurpassed. Our own Milton is the only poet who has dared to attempt to unfold a theme so lofty, and with Milton, Shakespeare, and Homer, Dante ranks among the world's supreme poets.

Living at the same time as Dante were two other Italians who are great figures in literary history. Petrarch was seventeen and Boccaccio eight when Dante died.

Petrarch lives now as the modern founder and perfecter of lyrical verse, delightful in its form and melody. His subject was love—his ideal love for Laura, as Dante's lyrical poems were about Beatrice. Especially he gave the world the artistically modulated sonnet. With it he captured the fancy of his generation. Everywhere he was acclaimed and honoured as the perfect poet, though now we see that his work was slight compared with the graver thought of Dante.

His was the most active influence in reviving a love of the world's ancient poetry, which had been long overlooked and partly forgotten. Kings and popes welcomed him, and much of his time was spent discovering old manuscripts which revealed the riches of the older literatures. But he lived in a corrupt age in which he was ill at ease, because he was a patriot, with aspirations for a more united Italy.

PETRARCH'S JEALOUSY OF THE GROWING FAME OF DANTE

His younger contemporary Boccaccio was his friend. One interesting point of difference between them was their attitude toward Dante. There is no doubt Petrarch was jealous of Dante's growing fame, while Boccaccio was an enthusiastic admirer of Dante, and wrote his life. Petrarch would not even read Dante's Divine Comedy, which Boccaccio rightly regarded as supreme in what was then modern literature. Thirty-three years before his death in 1374, Petrarch was, by invitation of the Senate of Rome, crowned poet-laureate.

Boccaccio, like Petrarch, was a lover of the old learning, a scholar, and a romantic poet, but in poetic style he falls far below the polished skill of his friend. His abiding fame rests on his collection of prose tales, the Decamerone.

As a framework for this book he imagines ten people, fleeing from the plague in Florence in the year 1348, and passing the time by telling tales in a garden. The tales, many of them old, are gathered from all kinds of sources, and a number of them jar against modern taste; but they are narrated by Boccaccio with fine skill, and they served as a store of fiction for novels and plays for several centuries. Some of them reappear in an English dress from Chaucer to Dryden.

BOCCACCIO AND THE INFLUENCE HE HAD ON THE REVIVAL OF LEARNING

Boccaccio was trained in commerce and in law before he devoted himself to poetry, and later he lived a life of gaiety in courtly circles where the moral tone was low; but he repented of the tendencies of some of his writings and would have taken holy orders if his friend Petrarch had not dissuaded him. His influence on the revival of classical learning was great, and he well deserves, through his graceful use of his native language, the title of Father of Italian Prose.

The fifteenth century was singularly barren in Italian literature. Count Matteo Boiardo in his Orlando Innamorato reproduced the Charlemagne romance, which, forty years later, Ludovico Ariosto continued in his Orlando Furioso with amazing spirit and success.

In the sixteenth century Torquato Tasso, son of a poet of some distinction, produced in La Gerusalemme Liberata, or Jerusalem Recovered, an epic of the crusades, the first of Italy's heroic poems. He had previously written, when quite a youth, a graceful romantic poem Rinaldo, and an exquisite pastoral, Aminta. Tasso, unfortunately, was too sensitive to criticism, and allowed his detractors to prey on his mind until at intervals he lost his reason, but his poems have retained immense popularity in Italy, and he is in the line of great Italian poets, and brings the line to a close.

Among Italian writers who were distinguished in prose were some whose fame is not chiefly dependent on their writing, as the immortal artist, Leonardo da Vinci, who wrote in a masterly way on art; or Michael Angelo, who wrote on sculpture and architecture, and was an accomplished and powerful poet; or Bruno, the martyred scientist; or Galileo, the great founder of physics; or Tommaso Campanella, the persecuted philosopher, whose ideal City of the Sun is still read in English. All were masters of a vigorous prose style.

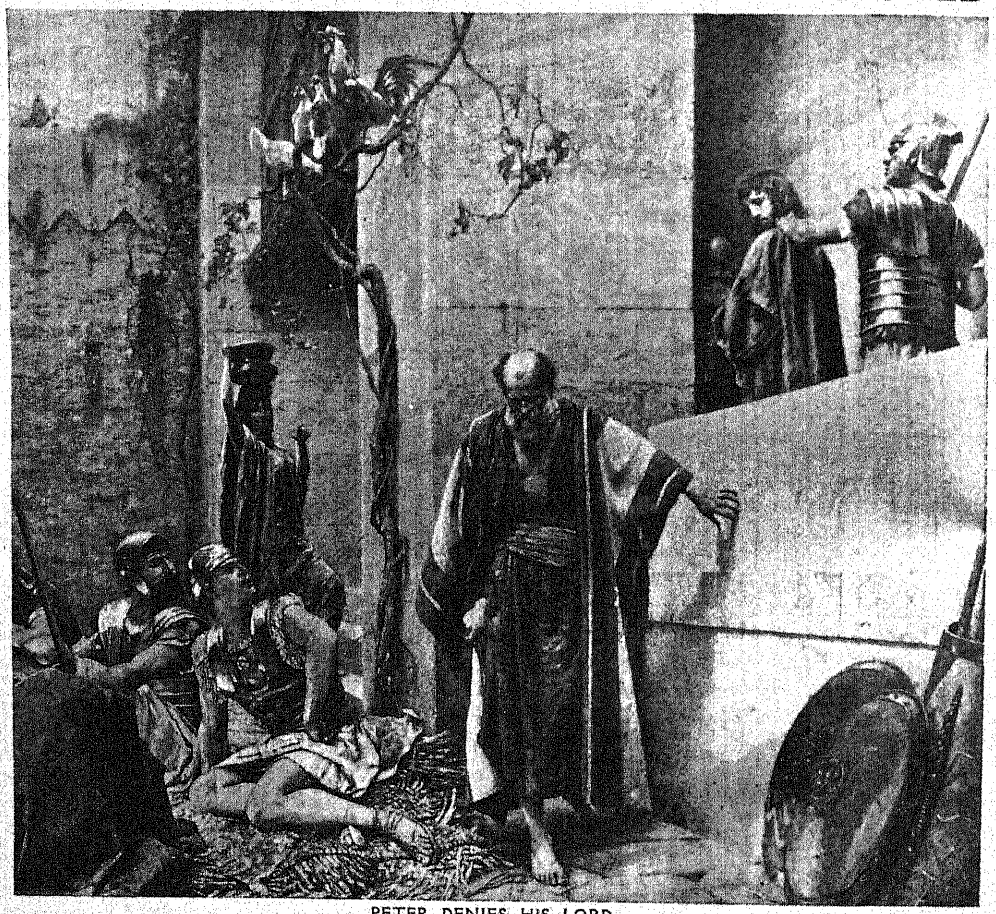
THE NAMES THAT STAND OUT IN THE LITERATURE OF ITALY

In the early sixteenth century Niccolo Machiavelli and Francesco Guicciardini both suffered much in moral reputation because they were content with the cynical view of human nature common in their age, yet they set an example of fairness and precision in writing history.

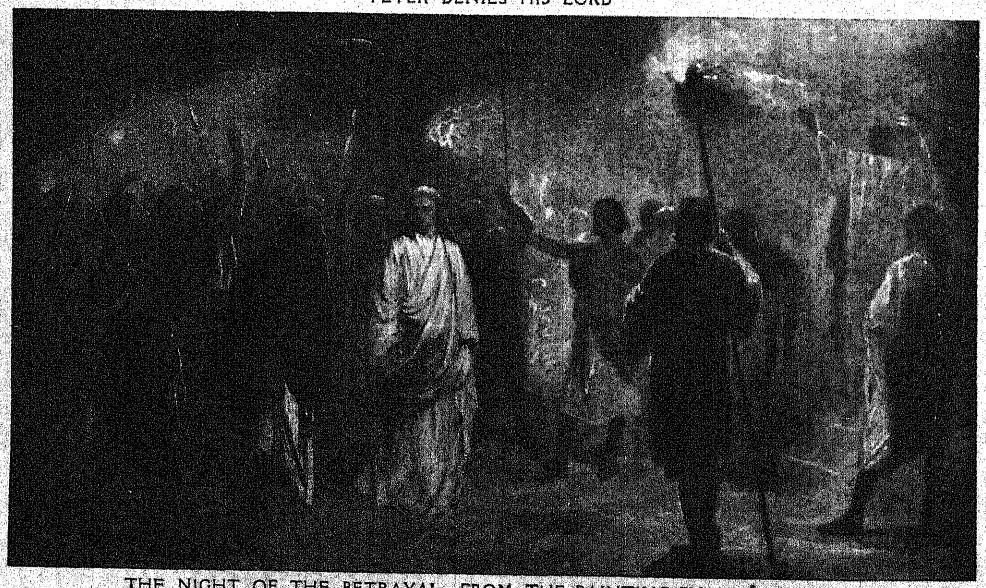
In the eighteenth century Carlo Goldoni, following on the lines of Molière, introduced forms of comedy which raised the level of the Italian stage, and Vittorio Alfieri brought patriotism, sincerity, and tragedy into the national drama.

Alessandro Manzoni, inspired by Scott, achieved a nineteenth-century success with a historical novel; and Giacomo Leopardi won wide admiration as a lyrical poet. As a prose writer the political idealist Mazzini appealed to Europe in an eloquent strain. But it is true that modern Italian literature has not had the power that carries far. It has lacked the strength of classical restraint, and frittered itself away.

THE BETRAYAL OF THE LIGHT OF THE WORLD



PETER DENIES HIS LORD



THE NIGHT OF THE BETRAYAL—FROM THE PAINTING BY HENRY TIDEY

The upper picture is reproduced by courtesy of The Berlin Photographic Company

The hymn after the last supper: Judas listening at the door

THE BETRAYAL

AND now, when the spirit of Jesus is at its most beautiful moment, though the gathering clouds of destruction are darkening above his head, we have to record the basest act in the history of mankind.

We know that Jesus *attracted* people. We know that children loved to be near him, that women followed him, and loved to do him service. And yet there was one who lived close to this divine beauty of character, lived with Jesus as a friend, and steeled himself against his charm.

How shall we understand the character of Judas Iscariot?

Perhaps it was Judas who invited Jesus to regard the splendour and the solidity of the Jewish temple. He may have been genuinely convinced that the ancient religion of Israel was eternal, and that Christ's teaching was a danger to the peace of the Jews. The priests had spread this idea. Friends of Judas may have said to him: "Your Master is mad; you are only helping to bring war and torture and oppression and misery on our race. Do you really suppose that the teaching of this carpenter of Galilee is going to supplant the law of Moses? Do you really dream that this simple Nazarene is the Christ promised from Jehovah?"

These ideas were flying among the minds of the Jews. They must have reached the disciples. Most of the disciples, we may safely say, were troubled by them; *all of them*, at the crisis, yielded to them.

Some people believe that money tempted Judas. They say he kept the money of the little confraternity, and greed grew in his heart. But never, we may be sure, was there a sufficiency of pence in that little bag of the first Church to tempt the worst of misers.

No, it is easier for us to believe that Judas came gradually to lose faith in Jesus; that he grew to feel the danger of challenging the ancient religion; and that, half as a coward and half as a patriot, he yielded at last to that base act of betrayal which has made his name a thing of hate down all the ages.

Jesus was to die, and it was by the hand of one of his own followers and disciples that the blow was to fall.

Jesus sat at supper with his disciples for the last time. He was clothed with serenity. Neither his manner nor his words betrayed anxiety. The same gracious restfulness which had characterised his life of struggle with old ideas characterised him now in his last hours.

But there was in the Master this night a certain sadness which was noticed by the friends about him. He spoke in the manner of one taking a farewell. He looked in the faces of his companions with a long and wistful tenderness. They knew that the hour had come. Presently he said:

"One of you which eateth with me shall betray me."

The words searched the consciences of his disciples. There was not a man there who had not doubted, who did not feel misgivings about the reality of Jesus as King of the Jews. Only one among them, let us believe, had ever contemplated an actual betrayal of Jesus; but none of them was wholly innocent of doubt.

THE LAST NIGHT OF JESUS WITH HIS TWELVE DISCIPLES

The company was saddened, and the feeling grew among them that the end was indeed close at hand. Gradually they saw that Jesus expected arrest that night. They sang a hymn together, and then Jesus led them out to the Mount of Olives.

The darkness and the stillness came about them. They walked in silence, wondering what the end would be.

The voice of Jesus broke softly upon their anxious thoughts:

"All ye shall be offended because of me this night." And he added: "It is written, I will smite the shepherd, and the sheep shall be scattered."

Tonight! It was to come this night. Their Master was to be taken this night.

Peter was the first to speak: "Although all shall be offended, yet will not I."

The loyalty of his strong and impetuous nature was touched by the pathos and the sadness of his Master. But Jesus said, in his quiet, gentle voice: "Verily I say unto thee that this day, even in this night, before the cock crow twice, thou shalt deny me thrice."

Peter was prompt with protest. Vehemently he exclaimed: "If I should die with thee, I will not deny thee."

THE SHADOW OF THE GREAT SORROW THAT FELL ON THE GARDEN OF GETHSEMANE

There was a murmur of approval from the others. All of them declared that they would not forsake their Master.

They came presently to a garden which was called Gethsemane. They were worn and tired. The toil and the journeys and the anxieties of the day began to weigh upon them. Over the heads of these houseless men the stars twinkled, and round about them glittered the lamps of the sleeping city. Even the fear of Roman soldier and Jewish priest could not dislodge from their senses the craving for rest.

"Sit ye here," said Jesus, "while I pray."

He drew to him three of the number: Peter, James, and John; and, leaving the others to sit down under the trees, advanced farther into the shadows and silences of the garden.

When he was gone some distance from the others, he gave way to the distress of his soul, and spoke openly with the three of his impending death.

"My soul is exceeding sorrowful unto death," he said. They saw the suffering and the heaviness of which he spoke. They realised now that he expected his enemies that night.

"Tarry ye here," he said, "and watch;" and then he went forward a little, and fell on the ground and prayed to God that if it were possible the hour might pass from him.

THE PRAYER OF JESUS IN THE BITTER HOUR OF TRIAL

"Abba, Father," he prayed, "all things are possible unto Thee; take away this cup from me. Nevertheless, not what I will, but what Thou wilt."

The terrible hour of trial had come to him. The cup of death was being offered to his lips. It was the end!

He might have escaped. All the malice and hatred and power arming themselves to kill him would have been gentle to him if he had said: "I am not the King." It was not necessary for him to die. He might live on and preach the righteousness of God among the villages. He had only to lay down his kingship.

But that kingship was something he could not give up. It was his throne, from which he would reign throughout the ages in the hearts of the good and the kind. His throne, from which throughout the ages he would comfort the sorrowful and encourage the weak to be strong, was the cross of death.

He returned to the three companions of this last watch, and found them sleeping. Perhaps their indifference to his danger, and their oblivion to his spiritual agony, plunged his soul once more into the darkness and loneliness of his conflict. Even

the chosen three slept while he suffered, slept while his enemies advanced to take him prisoner.

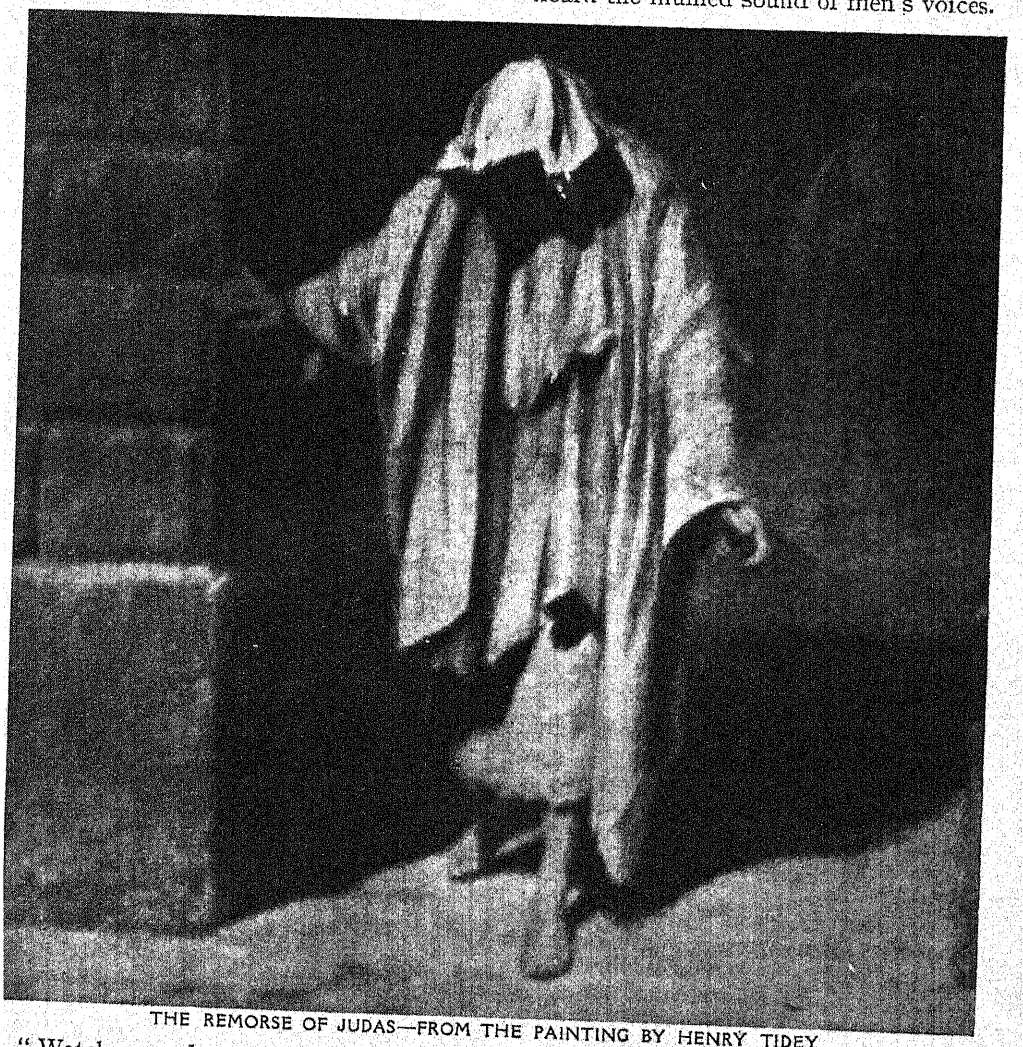
"Simon, sleepest thou?" he said to Peter. "Couldest not thou watch one hour?"

Then this failure of Peter to keep watch was turned by the Master into a lesson for that disciple's eternal good.

was on the threshold of suffering and death, and they could not keep their eyes open.

"Sleep on now," he said gently, "and take your rest."

Perhaps he thought the danger was over; that at least for this night he was safe; but as the words left his lips he saw a flicker of lights in the distance, and heard the muffled sound of men's voices.



THE REMORSE OF JUDAS—FROM THE PAINTING BY HENRY TIDEY

"Watch ye and pray, lest ye enter into emptation. The spirit truly is willing, ut the flesh is weak."

Then, as the hour had not yet come, he ent away again, and once more prayed the Universal Father; and again he ound his friends sleeping. A third time e went, and still the weariness of their odies was greater than their love. He

"It is enough," he said. "The hour is come! Behold, the Son of Man is betrayed into the hands of sinners. Rise up, let us go. Lo, he that betrayeth me is at hand."

The startled companions rose hastily to their feet, expecting an enemy. Through the gloom of the garden they saw the face of a friend. It was Judas Iscariot.

He had made to these proud authorities of Israel the offer to assist them in arresting Jesus without creating an uproar among the people.

The priests eagerly embraced this offer. It was the very thing they desired. On many occasions they might have arrested the preacher, but they held back for fear of disturbance. Any clamour among the people would have angered the Roman governor, and lost them their liberties and privileges. They wanted to destroy Jesus; but they feared to anger the hated Roman.

THE HOUR IS COME WHEN THE SON OF GOD IS BETRAYED

A company of them came together, Levites of the temple guard, Roman soldiers, some of the priests, and a retinue of servants. Torches were lighted, and accoutrements fastened. With the betrayer to show them the way, this little army of the night set out for the Mount of Olives.

There was to be no mistake in the darkness. "Whomsoever I shall kiss," said Judas, "that same is he. Take him, and lead him away safely."

It seems as if the intention of Judas was to deceive both Jesus and the other disciples. He would advance among the soldiers, as if forced to obey them, and in his emotion would embrace the Master.

So it came about that the sleeping disciples, roused by Jesus with the ominous words, "The hour is come," looked up and beheld the face of their companion Judas.

Jesus stood in the midnight in the midst of the garden, and waited.

JESUS IS BETRAYED TO HIS ENEMIES AND DESERTED BY HIS FRIENDS

Judas advanced. He ran to Jesus.

"Master! Master!" he cried, and kissed him.

The next moment Jesus was seized. Peter grasped a sword, and struck at one of the soldiers. Jesus rebuked him. Then, turning to those around him, he asked: "Are ye come out as against a thief, with swords and with staves to take me?"

He looked at the priests.

"I was daily with you in the temple, teaching, and ye took me not," he said.

The meekness of this reply scattered the disciples; the saddest words written in the history of the human race are those which follow this gentle reproval of Jesus.

And they all forsook him, and fled.

The courage of these poor, weary men vanished in the darkness as they beheld their Master meek and lowly in the hands of a few soldiers. Where was his kingship? The dream vanished; the hope died.

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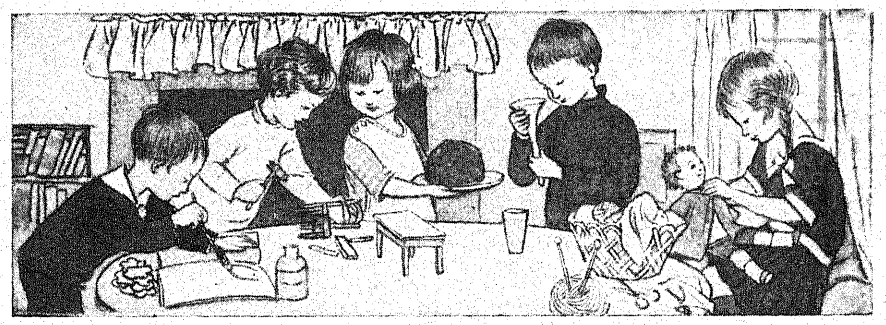

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The material consists only of two round clothes-pegs, such as can be bought at any oilshop at a few pence a dozen, some pieces of thin wire, and a piece of strong black thread that will not break.

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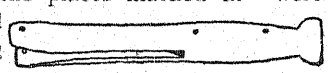

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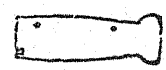
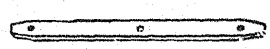


2. Body of peg



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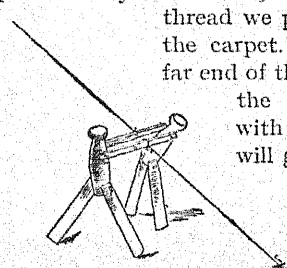
Now we take two thin slips of wood about three inches long, and make three holes in each—one in the centre and one near each end, as seen in picture 3. We take the pieces of thin wire and join the slips of wood we have just made to the body of the pegs, one slip of wood to each side, as seen in picture 4. These slips do duty for arms, as we can see. We bend over the wire at each end into the form of a loop, so that the arms will not slip off, but we must give room on the wire so that the arms can work round easily. Then the wire outside the loops can be cut off, if it is too long.



4. The wrestlers ready for work

Now the legs must be attached, wires being put right through the lower hole in the body, and the legs put on the wire by the holes made. These also must work very easily, and the wire should be bent into loops at the ends and cut off, just as when the arms were put on to the other end of the peg.

We now take a strong piece of black thread nine or ten inches long, and tie one end of it through the hole in the middle of one of the arms, making a loop at the free end of the thread. A long piece of black thread, say two or three yards long, should be tied to the other arm, using the hole in the middle of the arm. Our wrestlers are now ready.

Through the loop at the end of the shorter thread we put a pin, and put it firmly into the carpet. Then, if we take hold of the far end of the long thread, and hold it so that the wrestlers just touch the carpet with their feet and jerk it, the wrestlers will go through many amusing antics.

This toy looks very mysterious when the spectators do not see the thread; it is difficult to understand what makes the wrestlers jump about so.

The best way to conceal the all-important thread is to work the toy on the carpet when the room is a little dark. Then if the performer has a long thread, which he holds carefully out of sight behind his back, the mystery will be complete.

He had made to these proud authorities of Israel the offer to assist them in arresting Jesus without creating an uproar among the people.

The priests eagerly embraced this offer. It was the very thing they desired. On many occasions they might have arrested the preacher, but they held back for fear of disturbance. Any clamour among the people would have angered the Roman governor, and lost them their liberties and privileges. They wanted to destroy Jesus; but they feared to anger the hated Roman.

THE HOUR IS COME WHEN THE SON OF GOD IS BETRAYED

A company of them came together, Levites of the temple guard, Roman soldiers, some of the priests, and a retinue of servants. Torches were lighted, and accoutrements fastened. With the betrayer to show them the way, this little army of the night set out for the Mount of Olives.

There was to be no mistake in the darkness. "Whomsoever I shall kiss," said Judas, "that same is he. Take him, and lead him away safely."

It seems as if the intention of Judas was to deceive both Jesus and the other disciples. He would advance among the soldiers, as if forced to obey them, and in his emotion would embrace the Master.

So it came about that the sleeping disciples, roused by Jesus with the ominous words, "The hour is come," looked up and beheld the face of their companion Judas.

Jesus stood in the midnight in the midst of the garden, and waited.

JESUS IS BETRAYED TO HIS ENEMIES AND DESERTED BY HIS FRIENDS

Judas advanced. He ran to Jesus.

"Master! Master!" he cried, and kissed him.

The next moment Jesus was seized. Peter grasped a sword, and struck at one of the soldiers. Jesus rebuked him. Then, turning to those around him, he asked: "Are ye come out as against a thief, with swords and with staves to take me?"

He looked at the priests.

"I was daily with you in the temple, teaching, and ye took me not," he said.

The meekness of this reply scattered the disciples; the saddest words written in the history of the human race are those which follow this gentle reproval of Jesus.

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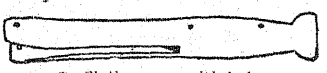

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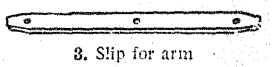

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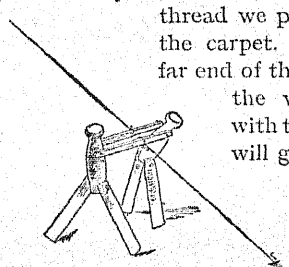

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WHAT TO DO WITH A GIRL'S WORK-BOX

4. The Doll's Knickers

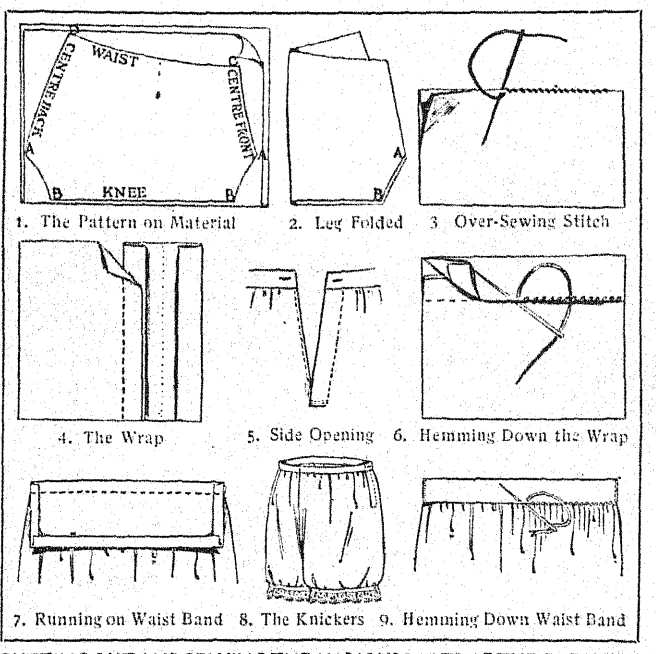
THE next garment we are going to make is the little knickers.

Picture 1 shows the pattern of one leg—half of the knickers—set on two layers of nainsook so that you can cut out the two legs together. It will be easy to trace a paper pattern like this, just as we did for the chemise, according to the size of doll.

When you cut out allow a little extra on the edges for seams and hems.

To make the knickers take one piece, which is to form one leg, and fold it to bring the short curved edges together, marked A, B, as shown in picture 2, and make a French seam from A to B. This is called *the inside leg seam*. Then take the other piece for the other leg, and sew it to match, being careful to fold the material *the other way*. If you did not do this, the two pieces would fit one leg only.

Now sew the two legs together by the centre edges, joining them from C down to A and from A up to D (see picture 1). This is better done by running and felling, if you can manage it, although the French seam answers the same purpose. The legs are now joined, and need finishing at top and bottom.



1. The Pattern on Material 2. Leg Folded 3 Over-Sewing Stitch

4. The Wrap 5. Side Opening 6. Hemming Down the Wrap

7. Running on Waist Band 8. The Knickers 9. Hemming Down Waist Band

CUTTING OUT AND SEWING THE VARIOUS PARTS OF THE GARMENT

The first thing to do is to make the side openings. For these make a slit in the nainsook about 2 inches long on each side of the knickers—that is to say, make a slit at the top of each leg on the opposite side to the inside seam. A glance at picture 1 will show you the dotted line *at the side* where the slit is to be made. One side of this slit is finished off with a tiny hem. This is the front of the knickers. The other side of the slit, the back part of the garment, is made neat by what is called a wrap, or false hem, about half an inch wide. See picture 4.

A false hem is a hem made of a piece of stuff joined on very neatly to the main part of the work; and the way to fix it is to join the two sides together by little running stitches. Then turn over the material, and make an ordinary hem. Of course, if we tried to make the opening neat by turning in a hem both sides, we should make our knickers too small, and so, to prevent this, we join on extra stuff in this way. Picture 6 makes this clear.

This side—the wide side—of the knickers folds over, and buttons over the other side. To prevent the knickers from splitting right down the leg, the bottom of the false hem should be sewn down on the right side with two rows of stitching, as picture 5 shows.

Now, if we hold up the garment we find it is in two parts, divided by the slits on either side. The wider part is the back, and the narrower the front, and each has to be put into a band to make it fit the doll's waist.

The back part of the knickers, which is much wider than the doll's waist, should be gathered into a little straight band, which must be cut according to the size of the doll. To put this band on, gather the material, and lay the edge of the band against the gathered edge as in picture 7, and run them together. Then take the other edge of the band, turn in a tiny fold to make it neat, and hem it down to the gathers on the other side, taking up each little gather on the needle separately. Picture 9 makes this clear. But there is one thing we must not forget, and that is to "stroke" down the little gathers.

When the gathering is done, pull up the thread as far as it will go. Then take a pin and stroke down *each* little fold evenly, just as if you wanted to make the material look like a piece of paper that had been folded up in tiny folds like a concertina. Use the *side* of the pin or you will tear the material.

After the band is sewn on, the two ends of the band are folded in, and sewn together with tiny "over-sewing" stitches Picture 3 shows how this stitch is done.

Now we have finished the back band. The front one must be treated in the same way, except that the material will not need to be gathered, but only "eased."

The next thing to be done is to finish off the bottom of the legs. The fulness must be gathered with running stitches and put into a little band. Cut a straight piece of material for this, which should be about half the width of the other bands we made. Make each one long enough to fit the doll's leg, and join the ends by running stitches. Turn in a little piece, top and bottom, then double it, and put the gathers between by stitching or feather-stitching. To the lower edge of the band, we can over-sew on the lace. But we must not forget the buttonholes which fasten the knickers on to the little stays. These are not at all difficult, for we have already learned to do them on page 4466.

In the middle of the bands we must put a buttonhole with barred ends, like picture 2 which is shown on page 4466, and one at each of the four corners of the bands.

When this is done our little knickers are complete, and should look as shown in picture 8 on the last page.

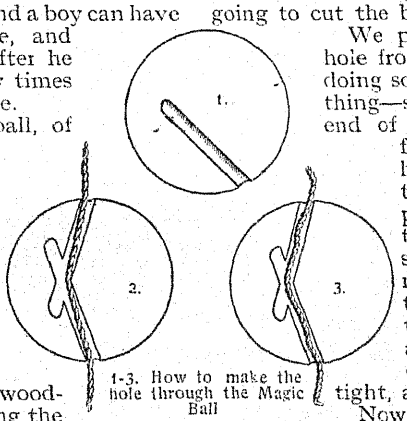
THE BALL THAT ANSWERS QUESTIONS

ONE of the most interesting toys is a ball that seems to count and answer questions. To people who do not know the secret it is very mysterious and a boy can have much fun by making one, and showing it to his friends after he has practised with it a few times and become expert in its use.

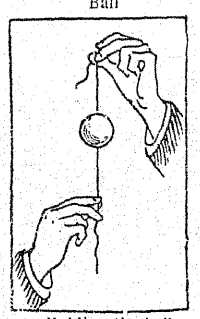
First, we get a wooden ball, of any size we like, but not too tiny. A croquet-ball will do nicely or one about the size of a golf-ball; but, whatever size it may be, it had better be of wood.

The first thing to do is to mark on the outside of the ball two points, exactly opposite each other. In most wooden balls we find two centre-points, that the wood-turner has used when making the ball. Then we use a gimlet, and make a hole in the ball, but not in a straight line toward the other point. Picture 1 shows how the hole is made; it is not through the centre of the ball, but to one side. The hole is not made to go right through the ball, but it must go more than half-way through.

Now we bore another hole from the opposite point. This is the only difficult part, for the second hole must be made so that it goes right into the first hole, and the result is that we have a continuous hole right through the ball, but not in a straight line.



1-3. How to make the hole through the Magic Ball


4 Holding the ball

Pictures 2 and 3 show how the hole would look if we were to cut the ball right through the middle. But, of course, we are not going to cut the ball through.

We put a string through the hole from side to side, and after doing so we had better put something—say, a button—on each end of the string, to prevent it from slipping out of the hole. Now, if we hold up the ball as the boy in picture 4 is doing, pulling the string tightly as we do so, we find that the ball remains fast at any part of the string we like. We let the string loose just a little, and the ball begins to slip down. Again we pull it tight, and again the ball rests.

Now we can ask the ball questions. We hold the string tightly, with the ball at the top. "Ball, how many do two and three make?" we ask; and, for reply, the ball takes five short steps down the string. Of course, we are making it do so, by making it tight and loose as we wish. Then we say: "Ball, I am going to ask you some questions. If you mean yes, move once; if you mean no, move twice."

We can ask any questions we like, and the ball can always answer them if we are allowed to hold it up by the string. A little practice will enable us to move the ball without being detected.

ANSWER TO THE PROBLEM OF THE TRAVELLER'S DINNER

THE Arabs about whom we read on page 4467 were very much astonished at the decision of the magistrate. But this was his explanation.

"One of you had five loaves," he said, "and the other had three, making eight loaves in all, and then, when the third traveller came up and joined, the eight loaves were divided equally between the three of you. Now suppose each loaf to be divided into three equal parts, there would, of course, be twenty-four parts, and as you divided equally between three of you, each received what was equal to eight of these parts. But one traveller originally had five loaves, or fifteen parts, and as he only consumed eight parts, he must have given seven to the foodless traveller. The other man had originally three loaves, or nine parts, and as he consumed eight, he only gave one part to the foodless traveller, therefore, as you can see, my decision is quite fair; the seven coins go to the man who gave seven parts, and the one coin to the man who gave one part."

A STENCIL PLATE EASILY MADE

If we have a design or pattern which we should like to transfer to a book or sheet of paper and use the same pattern over and over again, we can do so by making a stencil plate, which, for outline designs, is very much simpler than the more elaborate ones and quite as effective.

We must lay the drawing we wish to copy on a sheet of thick paper, such as cartridge paper, and with drawing-pins fasten the two sheets together on a kitchen table, or drawing-board. Then with a pin we must prick all over the outline of the design, being careful that we make the pinholes neat and clean and at fairly even intervals all over the lines.

It is essential that the paper and the picture from which we are making a stencil plate should be pinned down firmly to the drawing-board, and not allowed to move in the slightest degree while we are pricking the holes, or the outline will not be an exact copy of the picture. Whether it is a flower, or a bird, or an ornamental design, it will, if the paper is allowed to slide about ever so little on the picture, be found to be badly out of proportion when finished.

Now let us remove the drawing-pins and take away the upper picture. We shall find that the clean sheet of paper has the outline of the pattern transferred to it in a series of little holes. To multiply the pattern in a book or on other paper we have only to pin this perforated sheet down and dust it over with powdered charcoal, a bag of which may be bought at any oil and colour shop for a few coppers. The charcoal should be put in a muslin bag and shaken over the stencil, great care being taken that the stencil is properly fastened down.

The powdered charcoal will penetrate through the holes in the upper paper and the design will be transferred to the paper below. Then we can remove the stencil and ink in the design; or, if we so desire, colour it with paint or crayons.

The plate will last for a very long time if treated with ordinary care.

If we find any difficulty in getting a piece of sufficiently stiff white paper, we can use brown paper. This, if it is of a smooth nature, will answer the purpose almost as well, and, being tougher than ordinary white paper, will last considerably longer.

THE BOY CONJURER'S JOKE WITH HIS AUDIENCE

At the end of a series of tricks it is often good fun to practise a practical joke on the audience in the disguise of an ordinary conjuring trick.

The only apparatus is the pencil, and this we can make for ourselves. We have merely to change an ordinary pencil in such a way as to make it look like an extraordinary one. For instance, we may paint it in three colours—red, blue, and yellow, successive rings of each colour; or, for lack of paint, coloured paper may be used—anything, in fact, to give it an out-of-the-way appearance.

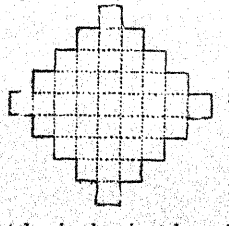
Having performed a few genuine tricks, we produce the pencil and a blank sheet of paper, inviting the company to examine them. "Now, ladies and gentlemen," we remark, "you notice, no doubt, that this is a rather peculiar-looking pencil. But its appearance is the least of its peculiarities. As a matter of fact, it is an electric pencil. At present, you see, it writes plain black like any other pencil." Here we make a few marks with it and proceed: "But if I electrify it a little, it will write red, blue, or yellow—in fact, any colour, just as I please. What colour will you have? Choose for yourselves." "Red," perhaps, is the reply. We gravely breathe upon the pencil, rub it on our coat-sleeve, and write the word Red in bold letters. "There it is, you see—red. If you had asked for blue, it would have been just the same."

The success of the trick rests on the fact that the audience have been prepared, by seeing sundry surprising things, to expect something equally surprising. If the trick were offered offhand, without such preparation, it would very likely fall flat, for some of the audience would probably see through the joke; but if it is led up to in a proper manner, they will hardly ever do so.

THE PUZZLE OF THE MYSTERIOUS SQUARE

One afternoon Kenneth could not go out because it was wet, so he went into his father's library and began to look at some of the books. After a little while he came across a book of Eastern tales, and in it he found many interesting problems that the wizards of the East had invented to amuse their royal masters.

One of these problems he could not solve, however much he tried. He puzzled and puzzled over it for a long time, but in vain, and at last he had to appeal to his father.



In the book was a drawing exactly like that shown here, and the puzzle was to cut this figure into four pieces by means of two straight cuts, so that the four pieces, when put together in a certain way, would form a perfect square.

"Why, it is quite simple," said his father, with a laugh, after looking at it for a short time. "Take it away, Kenneth, and try again."

Kenneth tried very hard, and at last he solved the puzzle correctly. The solution will be found in Section 38 of Group 18.

The wonderful effect that motion has on matter is well illustrated in this picture. A candle, if pressed against a wooden board would be pressed out of shape. But fired from a gun, so that it travels at a great speed the candle will go right through the wood without itself being injured.

THE MOVEMENT OF THINGS

We now come to another part of the Story of the Earth. We have a good idea of what the Earth is, and we have studied some of the other worlds in space. We have learned also about the different elements that make up the Earth and the Sun and the stars, and the way in which those elements combine with each other. We have studied Geology, and Astronomy, and Chemistry, and Geography to some extent.

There still remains to us a very important study, the name of which is Physics, from the Greek word for Nature. By physics we now mean the study of motion, heat, light, sound, and electricity; and here we go on to study motion.

When we look at the world around us, or at our own bodies, we find that two things catch our eye, matter and motion. In other pages we read about matter: what it is made of, and the way it is put together to form rocks, and planets, and stars. We have shown what are the reasons for believing that all matter in all its forms can first be reduced to atoms, and that these atoms, though about ninety in number, are all different arrangements of the same unvarying thing which is the unit of electrical matter, the electron.

But motion is not a "thing" in the sense that matter is, yet it is real. If a boy observes the difference between holding a cricket-ball in his hand and stopping the cricket-ball when it is hit in his direction, he will know that motion is real. Or if we notice the difference between our feeling when we jump off a single step into the water and when we dive from a great height, we shall know that motion is real. We are beginning to believe that it is more real than matter, and that matter is really a state of motion.

A state of motion in what? We think of a bird or a bullet flying through the air, or of a fish moving through the water. What is it the Earth is moving in?

Usually we say it is moving in space; and in the broad meaning of the word, all things, the bird, the bullet, the fish, the Earth, the Sun, and the stars are alike moving in space. But can we think of space as empty? Our minds are so formed that we do not find it easy to think so. For example, as we shall presently have to show, the Sun attracts, or pulls at, the Earth and the other planets across space. How can it do so? Nobody can pull another person across even a room if there is nothing but empty space between them. The two must be joined in some way, either to exert or to feel the pull. Yet we have just said that the Sun acts on the Earth at a distance; how can that be unless there is a something between them acting as a link?

It is possible to think of the Earth as being whirled round the Sun at the end of this link as we might whirl a stone tied to a string round our heads ; but what sort of a string would it have to be to unite the Earth and the Sun, the one whirling round the other at a distance of ninety million miles and a speed unimaginable ? Sir Oliver Lodge has calculated that a million million steel rods, each seventeen feet across, stretching from the Earth to the Sun, would only just stand the strain.

HOW LIGHT MAKES ITS JOURNEY FROM THE SUN TO EARTH

Again our eyes tell us that light comes to us from the Sun across space. We have learned that a light-ray takes about eight minutes to come from the Sun to the Earth. What becomes of the light during that eight minutes ? It must be moving through something. We have learned also that it comes in waves like ripples in water, and cannot apparently come in any other way. What is it that is waving or rippling ? Empty space cannot ripple.

The scientific men who first asked these questions found no better answers than to suppose that there was an actual something between the Earth and the Sun and the stars, something that could be set quivering like a jelly with ripples of light, and was yet strong enough to bear the awful pull between the heavenly bodies. They called it the Ether, the light-bearing Ether.

THE MYSTERY OF THE ETHER WHICH FILLS ALL SPACE

We do not know what this ether is. It adds nothing to our knowledge. Itself non-luminous, it is the vehicle of light. It is not matter, but the powers of matter are latent in it. It offers no resistance to the passage of matter, yet it is supposed to be more rigid than the hardest steel. The most delicate experiments have utterly failed to prove its material existence, and the most that can be said of it, if it truly exists, is that it shows that the things which are not apparent to our senses are infinitely more important than those which are apparent.

But if we have to take the ether on trust we are less at a loss when considering the ripples of light which pass through it. We cannot at present picture any way in which they travel except in ripples or waves, and the something which is rippled by them may for convenience be presumed to be the ether. The qualities ascribed to the ether are those which best fit the observed facts of the passage of light or the action of gravity and magnetism at a distance. In science it has, nevertheless, often been shown that an explanation which appears to fit the facts is not necessarily the only one or the right one, so the ether is still on its trial, until a better explanation of the passage of light can be found ; and what we are justified in saying now, is that when the ether ripples or undulates in a particular way there is produced on our senses the effect we call Light.

So, also, if we choose to take the idea of the ether as a starting point of theory, then not only light and the radiant heat which blazes from the Sun and other bodies, but the invisible rays of light which cannot be seen by our eyes because their wave-length is too short, and X-rays which are the simplest form of light, and have a still shorter wave-length, and electro-magnetic waves of all kinds, all use ether ripples of various lengths from crest to crest. They are, we may say, *states of movement in the ether.*

THE WHIRLING ELECTRIC FORCES WHICH MOVE AT TERRIFIC SPEED

Throughout the nineteenth century and well into the twentieth this idea of movement in the ether served to explain all these occurrences ; furthermore, the ether was called on to account for the existence of states of matter.

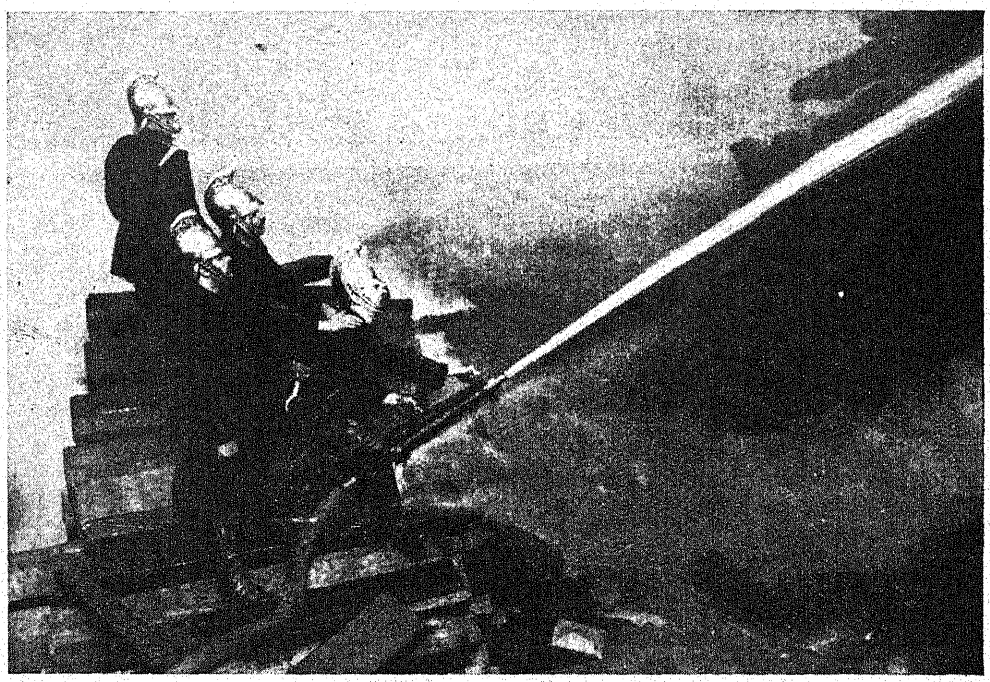
We have already shown how the investigations that have taken place since the discovery of radium have convinced scientific men that the smallest possible particles of matter are not hard, unbreakable specks of matter, but are truly systems of electric forces which are whirling at millions of miles a minute about one another. These electric forces are the electrons, and the electron, which is neither a speck of matter nor merely a state of motion, but something between, can be thought of as the smallest possible particle of electricity ; an atom of electricity perhaps. Nineteenth-century science knew very little about these things, though it may have suspected their existence. But such ideas as were then prevalent about these or similar bits (or charges) of electricity were joined up with the ether in the thought of that time by the idea that they were a kind of knot or strain in the ether Matter itself was an assemblage of such knots or strains. That was the

nineteenth-century way of saying that matter itself was formed out of the ether and was made or built up by force or energy. It was a belief different only in form from that which is held now.

Let us examine more closely how motion, whether supposed to be a motion of ether or a motion of electrons, can produce the effect of solid matter—or of light or of heat. Heat as we know it appears to be of two kinds; the radiant heat coming from the Sun or a blazing furnace, and the heat of a hot object, like a hot-water bottle, or of hot water itself. The heat of hot water is supposed to be due to a to-and-fro movement, *an oscillation*, of the atoms or molecules of the water when heated.

As a rule, when a thing is made hot it gets bigger, and this means that part of the size of the thing is due to its heat—that is to say, to *motion*. May it not be that the atoms and molecules themselves owe their existence to motion? There are many experiments which make it probable that this is true; one of the most remarkable may be mentioned. Can we believe that the hardness, the stiffness, the firmness of a thing can be made simply by the fact that it is moving? If we could suppose this, then we could suppose that the movement of the ether, or of electrons, could make it into matter—which we think of as something hard. Now, if we take a ring of chain which simply lies in a heap on the floor, and get hold of it in such a way that we can make it spin round at a tremendous rate, it becomes quite stiff, as if it were made of one piece of solid steel; and it will run for a long distance like a stiff hoop until the spinning, or rotation, of it has been exhausted, and then it will collapse into a little heap of links as at first. *The movement made the loose chain into a stiff thing.*

Another illustration of this is the firing of a candle through a wooden door, the motion imparted to the candle enabling it to make a hole through the wood without itself being injured.



SO HARD IS A STREAM OF WATER FORCED FROM A HOSE UNDER TREMENDOUS PRESSURE THAT IF IT WERE STRUCK BY AN IRON BAR IT WOULD BEND OR BREAK THE BAR

Again, we may take a piece of soft tissue-paper, stretch it out, and spin it at great speed; and it will cut like a knife. We have made it hard by making it move.

Now, wherever we find motion we know there must have been either some other motion, of which this is the continuance, or else some power has been spent somewhere to produce it. When a ball leaves the arm, the motion of the ball and the power of it have been derived from the power in the sugar of our muscles when the ball was

thrown; and so in every case. This great principle, which is true not only of motion but of everything else, has a name which is rather long, but is not really difficult; it is called the *Conservation of Energy*. Energy is a special word for power, and the Law of Conservation states that power is never lost; it is also part of the law, though the name does not say so, that *power is never made out of nothing*.

One of the ways in which this shows itself is in what is known as Newton's first law of motion. Everyone should know this, for it applies to everything. It is often called the Law of Inertia, which simply means "doing nothing."

WHY MOVING THINGS DO NOT GO ON MOVING FOR EVER

This law says that when a thing is moving it does nothing itself to change its motion. It therefore will go on moving for ever, in exactly the same direction and at the same speed, unless some other power stops it, or turns it, or makes it go slower or faster.

That is half of the law of inertia, but only half of it; and it is given first because it is the half that people usually forget when they talk about inertia. The half that most people know is really the same thing, but looks different. It is that *when anything is at rest, it remains at rest, doing nothing, until something moves it.* Whenever we think of inertia, or Newton's first law of motion, we should remember both halves of it, or, rather, the two ways in which the law works out.

Everyone understands how it applies to a thing that is not moving, but very few people remember how it applies in the other direction. They do not know that a thing which is moving will not stop unless something stops it.

WHY A BALL FALLS WHEN IT IS THROWN INTO THE AIR

We see a ball thrown up into the air, or thrown over the surface of the Earth, and we know the motion ceases. This is our experience with practically all motions, and so we get the idea that when a thing moves it gets tired after a time, and stops. It was one of the most tremendous discoveries ever made that this is not so, and that the smallest touch applied to the biggest thing, sufficient to move it at all, will keep it moving at that speed and in that direction for ever. When a ball thrown up is stopped, the Earth by its pull stops it, and the resistance of the air helps also in the stopping. When a ball running along the ground stops, it does so because the resistance of the air and the friction of the ground stop it. The real tendency is for the thing that is at rest to remain at rest, and for the thing that is moving to go on moving. If we think of the matter we shall see that if things did not behave in this way the law of the conservation of energy would not be true.

If things could be started moving without anything moving them, the power (or motion) would be made out of nothing; if moving things could be stopped without something stopping them, motion would be made into nothing. That is what we mean when we say that Newton's law is really a special illustration of the great law of conservation.

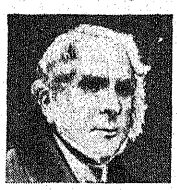
Newton discovered two more laws of motion, thus making three, which will always be known by his name. The second law is quite simple. It says that *when anything is made to move, its motion is in strict proportion with the force that makes it.* Further, the thing moves in the direction of the straight line in which the force acts. This is true even if there be twenty different forces acting in different directions on a body, and it is true whether that body be at rest or already in motion.

THE BALANCE OF FORCES THAT BRING ABOUT A STATE OF REST

Using this law, it is possible for us to find out exactly in what direction, and at what rate, a body will move, if we know the power and direction of any number of forces that may be acting on it. We discover also the profound truth that rest is a state of balance of forces; forces are pulling, but other forces are pushing. These exactly oppose each other, and so the result is rest. Gravitation is pulling this book as it lies on the table, but the strength of the table resists the force of gravitation, and the book remains at rest.

Newton's third law of motion is that *action and reaction are equal and opposite.* This great law, which is really another version of the law of the conservation of energy, is very well illustrated in the recoil of a gun when it is fired. The momentum and force of the rifle as it kicks back are *exactly equal and opposite to the momentum and force of the bullet as it goes forward.*

All these laws are of supreme importance, and though we may not be able to understand all their details we should certainly know something about them.

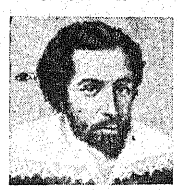

Sir John Ross

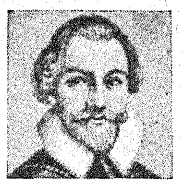
Sir John Franklin

Sir E Parry

Sir J. Clark Ross

Roald Amundsen


Sir H. Willoughby


Martin Frobisher

Henry Hudson

A. E. Nordenskiold

F. W. Beechey

MEN OF THE NORTHERN SEA-GATES

THE main land masses of the Earth lie stretched from north to south, barricading the way from east to west. The western continent spans almost the whole distance between the icy Arctic and the blizzard-swept Antarctic. Europe and Africa, without a break before the Suez Canal was cut, made another solid block from the Arctic to the stormy South Atlantic. But the desire of man has always been to cross by the balmy climates, if it could be done, from east to west, or from west to east.

Surely there must be some easier way, or at any rate some alternative way, to the long southward track round the southern capes of storm that tip America and Africa? How much nearer it would be if only man could sail the northern edges of America or of Asia between the keener nips of wintry weather!

Those short cuts between east and west have haunted the imagination of seagoers ever since Columbus headed for India against the blank obstruction of America. Nowhere else on the Earth has there been such sustained romance as in the attempt to link east and west by a northern passage.

The imaginations of men were on fire with yearning to reach the East, home of the jewelled queen of bounty from whom they were to derive spices and silks, gold and perfumes, ivory and gems; but at every call for the princess they were seeking, it was the despised Cinderella, young America, who answered.

The men of the age could not project their minds into the future and see America with 120 million people in its northern half, the richest nation on the Earth. To them a little ship not too rotten to get out and home with a cargo of pepper was of greater consequence than any possibilities of the new continent.

Columbus failed to get past his fancied East in the West, and John Cabot tried as vain a venture. We must pause a moment in his company, for he was as typical a character of those marvellous times as Columbus himself. Like the mighty pioneer, John Cabot was a native of Genoa, and became a citizen of Venice. He had three sons, and their life in Venice recalls to us the picture of Marco Polo in a similar setting.

John Cabot reached England in 1490, settling at Bristol, which was then our greatest port looking out to the West. He was a man like unto Columbus, animated by the same dreams of what lay beyond that great ocean over which his

eyes were ever straining. The same hope, the same dreamy mysticism, surged in his blood. He thought of reaching wonder-lands, the East through the West. He believed there were fabulous islands of enchanted ease and riches; he believed all the old fables of lands graced by seven perfect cities, countries where corn grew untended, realms of wealth and bliss to be had for the seeking.

Before Columbus sailed on his first great voyage Cabot had made expeditions to the West not to find the Indies, but some fabled island of Brazil. No land, however, was discovered.

Our Henry the Seventh might have had Columbus and his feats to glorify his reign; he did indeed consider the project which the brother of Columbus was sent to lay before him; approved it, got together money to furnish the expedition, and spent it on tapestries to decorate Hampton Court Palace. When he heard of the success of Columbus, however, he took counsel with John Cabot, was persuaded that the true East had not been reached, and sent his Genoese adventurer to seek it by way of a north-west gate.

THE ADVENTURER WHOSE NAME WAS GIVEN TO AMERICA

It was an age in which some men did great things and others pretended to have done greater. The claims of Amerigo Vespucci, who declared he had made voyages which we know to have been impossible, won for him the false honour of having the New World called after him, and not after its real discoverer. Sebastian Cabot, a son of the great John, had as unscrupulous a talent, and wrote histories of voyages he never made, or made under the command of his father, and so the feats of John Cabot have been denied something of the lustre they merit.

But one fact is clear as the noonday Sun. John Cabot sailed in 1497 in the attempt to miss the New World and reach the Old, and, instead of doing so, he discovered North America. Apparently he touched at Newfoundland; that or Cape Breton Island must be the new island for which the King rewarded him with ten pounds.

More and more of the coast of South America was revealed in successive voyages, and the coastline from south to north appeared interminable. Eleven years had enabled Vasco da Gama to round the Cape of Good Hope which Bartholomew Diaz had found, and India was reached by sea; but the westward way to the same treasury of riches seemed shut off completely by this obstructive continent. Surely, men thought, it stretched from Pole to Pole.

Magellan's grand voyage, 38 years after Columbus's first, showed that there was a way through the South, but he had had to sail 99 days after clearing the dreaded Strait. Not for another half-century did anyone seriously attempt to follow in his wake, and then Francis Drake sailed round the world in his Golden Hind. One great thing he proved in that voyage, and another he attempted.

THE TEMPEST THAT DROVE FRANCIS DRAKE TOWARD A GREAT DISCOVERY

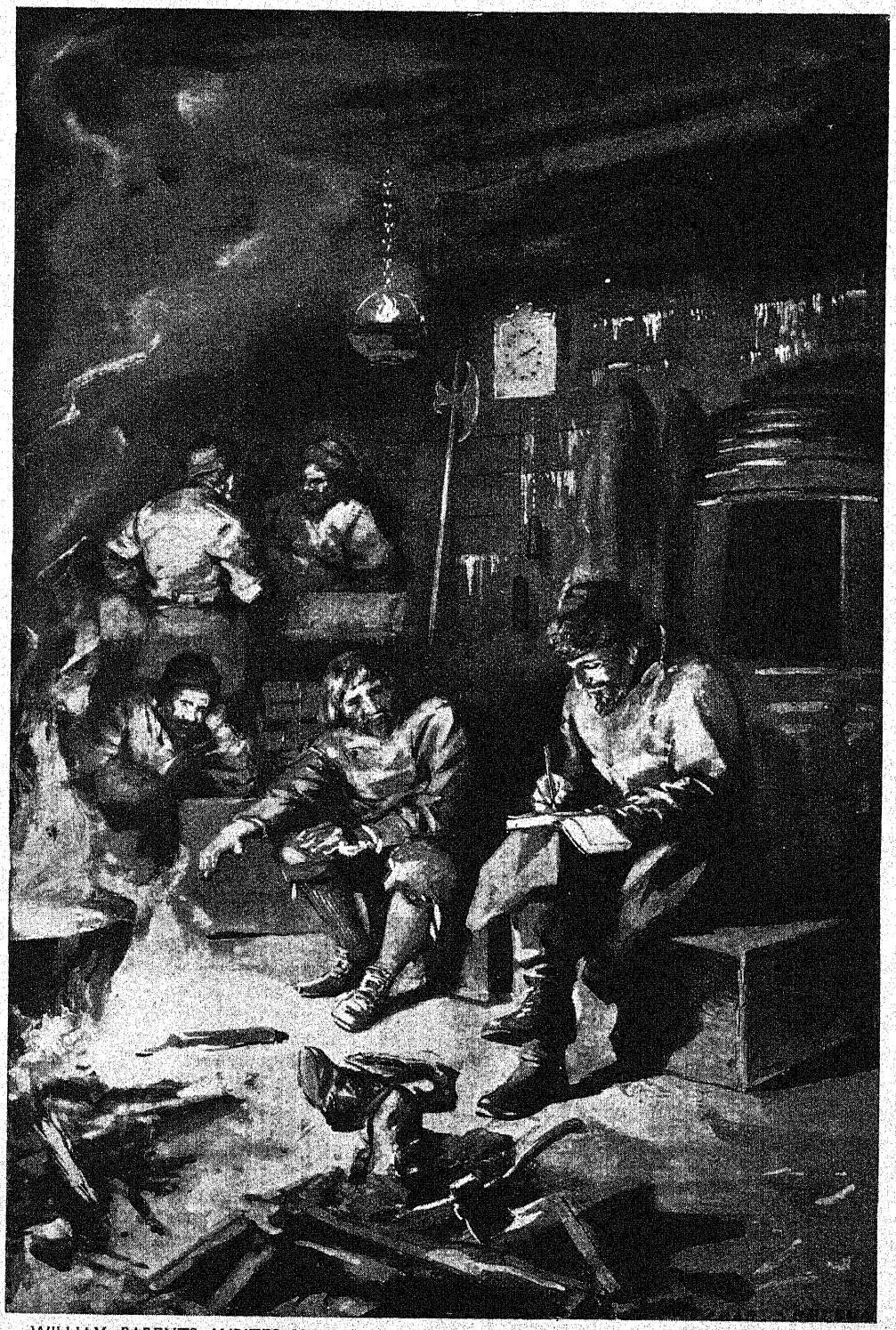
Caught by a storm as he emerged into the Pacific from Magellan's Strait, he was blown fast and far southward beyond Cape Horn, and found open sea at the foot of the southern extremity of the continent, so establishing the fact that America does not reach to the South Pole. Drake returned thanks to God for the tempest and its consequences, regarding it as a sign from heaven directing him to his great discovery; and then, having filled his ships to bursting with treasure snatched from Spanish ships off Chile, and fearing reprisals if he returned by the way he had come, he calmly steered north to round America and sail home to the east.

That was the first attempt at the north-east passage from the Pacific, and our daring Drake was baulked in his endeavour, not by the actual dangers and difficulties, but by the fears of demons and supernatural perils which his crew believed to exist in those high latitudes. Drake therefore struck out across the Pacific and rounded the world in order to get home, as if it were an everyday yachting cruise.

THE WILL-O'-THE-WISPS BY WHICH MEN HAVE BEEN LURED ACROSS THE SEAS

Romance and fire and knight errantry of the sea were in all this wondrous pirate did, but superstition animated these men who sailed where Columbus had led. Eternal youth and the realms of the blessed were among the will-o'-the-wisps which lured these men across the seas. There was, however, also a more substantial bait. Cabot in his voyage had discovered a coast whose sea seemed almost solid with fish, and generations of men braved the horrors of the broad Atlantic to gain distressful rewards from catching

WILLIAM BARENTS IN HIS LITTLE HOUSE



WILLIAM BARENTS WRITES HIS DIARY WHILE HELD UP FOR THE WINTER IN A LITTLE DRIFTWOOD HUT ON NOVA ZEMBLA

those fish and selling them salted at home where food was never quite enough for the mouths it had to feed. Dangerous little ships they were that sailed, often with their bursting timbers bound together with ropes; half-decked, with open skies for the crew or damp, reeking kennels in which to screen themselves a little from wind and water.

THE HARDSHIPS MEN ENDURED IN THEIR ROMANTIC SEARCH FOR TRADE

Every disease which can come to badly fed and housed seamen struck at those early sailors of the Newfoundland trade, yet the hardiest survived, and bred a matchless company. The smallness of the ships made many captains and navigators necessary; the wealth they earned, the trophies they brought, the stirring tales they told, all helped to create schools of sailors such as have never been excelled.

These were the days of the so-called Merrie England whose praises are so often sung; it was an England so merry that men ventured out in ships like floating coffins to have a few pounds to keep them and their families from the pangs of starvation which smote the land each winter.

And it was trade, not glory, which inspired the men who sailed those mad little vessels. All geographical adventure of that great age had trade for its mainspring. Those who call us a nation of shopkeepers should remember that we owe everything to the men in whom the shopkeeping instinct was most active and imaginative.

Trade dictated the ventures to the north-west gates, and as these failed, London merchants formed themselves into a company and sent out, in 1553, a little fleet of three tiny ships, to find a way to Asia by the opposite way—to find a north-east gate.

The expedition was commanded by a man of whom Nottingham is rightly proud, Sir Hugh Willoughby, with whom were Richard Chancellor in a second ship, and Captain Durforth in a third. It was a memorable day for London when the little fleet sailed down the Thames.

THE DOOMED KING'S FAREWELL TO THE ADMIRAL WHO WAS ABOUT TO DIE

King and Court turned out at Greenwich to wish it Godspeed. Young King Edward was of the company, doomed. The Admiral who was about to die saluted the King who was about to die. Flags fluttered, guns fired, and the tiny ships passed on. Before long the boy King was in his coffin; in six months the gallant Willoughby was in his coffin, which was his entire ship.

The three vessels turned the North Cape, which was named on that voyage, and in the high summer of our land, found itself in wintry conditions of unexpected horror. The vessels were blown away from each other, and Willoughby was frozen-in off the coast of Lapland. There, unprepared for conditions so terrible, he and his men froze to death in their floating home.

They were found, three years later, just as they had died; the men in various parts of the ship, Willoughby still seated in his chair in his cabin, papers about his table, his diary open before him, recording, as his last entry, that " strange beasts, to us unknown and also wonderful " were roaming about the ship.

Such was the first search for a north-east gate from a home port, and so the long, agonising roll of suffering and death opened. But there were good results for commerce as well as bad blows at the heart. For Chancellor, all unconscious of this tragedy, found his way to the White Sea, wintered where Archangel now is, made a sledge journey to Moscow, founded a great trade between England and Russia, and paved the way for a thriving trade with Persia.

THE THRILLING ATTEMPTS OF FROBISHER TO FIND A NORTH-WEST GATE

An opening by the sea appeared not to exist that way, and so, after a lapse of another forty years, that kindred spirit of Drake, the valiant Martin Frobisher, tried the north-west again. The farthest point he ever reached was Labrador; but how splendid, how incredibly dashing, were his three attempts!

He went up into the raging north, amid icebergs and ice-sheets, in ships of which the greatest was a 20-tonner. He commanded 35 men, but they were distributed over three vessels. China, golden sunlight, and golden treasure were in his dream, and he did not mind if he had to sail over the North Pole to get it. But all he gained was a lot of useless ore, supposed to be gold, from an island in the north, and the discarded tusk of a narwhal which when brought home was regarded as the horn of a unicorn, possessed of magic properties and therefore a fitting gift for Queen Elizabeth.

In place of the stately grandees of China of whom Marco Polo had written, Martin Frobisher found the first Eskimos he had

seen, and brought home one as a marvel to match his tusk. But it was not the fault of the Eskimos that he came home at all. They were as much amazed at the sight of him as he was at them. They baited hooks with seal-meat and threw them into the water as a lure, hoping to catch him, like a strange, great fish.

THE HARDY FISHERMEN WHO WON FOR US THE FREEDOM OF THE SEAS

Frobisher and Drake had after this more vital concerns than exploring. Cabot's discovery of fish off the Newfoundland banks had called into being a body of men who, with Drake and Howard and Frobisher at their head, were able to sweep the Spanish Armada from the seas. But for seeking a way past America to the East there would have been no find of cod, and but for the cod there would have been no swarm of tough sailors to defend us. Cod and cruises fitted us for greater frays, and the men who went down to the sea in these old ships kept us a free land, at liberty to explore wheresoever we would.

But a great figure, of whom we hear less than we should, was roving the wild seas, both before and after Armada days. It was John Davis, a daring son of Sandridge, near Dartmouth, who was sent north-west three times, beginning when he was about 35, in the year 1585. Greenland, where Eskimos and Vikings had mingled, had been lost to knowledge for a century and a quarter, but John found it again. Approaching it from the east, he sailed south, rounded Cape Farewell, and sailed north and left it far behind, sighting green islands and fair sea.

A second and third time he went, and at the third attempt he reached what is now called the Davis Strait after him, washing the western coast of Greenland and linking Baffin's Bay with the Atlantic. As far north as latitude 73 sailed he, and though he was fated to be murdered in Oriental waters, reached by way of the Cape, he bequeathed a hope and an illusion.

JOHN DAVIS AND HIS MISTAKEN IDEA OF THE NORTH POLE

The open waters of summer encouraged him to declare that the seas to the north were free of ice, that such swift seas could not freeze, and that if we pressed far enough we should find an excellent climate and a people at the North Pole superior to all others, through the enjoyment of perpetual light "by the benefit of twilight and full moons."

A tremendous character was Davis, first of the long line of true Arctic men. He wrote admirably of his voyages and his books had an enormous following for generations after his own day.

The next outstanding figure was the Dutch William Barents, whose countrymen were powerful at sea at the time, and as anxious as we were to find the short ocean route to the East, where they had great possessions. Barents, in a fine voyage beginning in 1594, sailed 1700 miles, in which he turned his ship about no fewer than 81 times, made accurate observations, and fixed his latitude. Sailing north a second time, he discovered Spitsbergen, but, taking it to be part of Greenland, he turned about to Nova Zembla, and was frozen in, the first expedition to survive winter in the Arctic since Viking days.

It was a terrible and wonderful time. They built a hut of driftwood, with a cask for a bath, a chimney through the roof, and plank beds for 18 men along the walls. Snow buried the hut, and bears tried to tear open the roof, but the men climbed up the chimney and fought them off. Blue foxes served for food and clothes, but the ice was "two fingers thick" inside the hut.

WILLIAM BARENTS AND THE SIXPENCE HE PAID FOR NOVA ZEMBLA

When spring came and his ship remained fast, Barents ordered his men into the two boats they had, and he died, a quiet and uncomplaining hero, on the voyage home. Barents was a fine sailor, a scholar, and a cheerful soul. Wanting to claim new territory for his king, he nailed up a cross with a sixpence, bearing the king's likeness on it. That and Dirk Hartog's soup plate nailed up on the shore of Australia (of which we read on page 2378), must be among the most curious of all the title deeds on record.

In 1871 another Polar explorer rounding the north-east point of Nova Zembla, saw a hut standing, and in it he found the captain's room, with a clock in its place on the wall, and everything as it had been left 274 years earlier. Four years later another searcher in the hut discovered part of the diary Barents had written.

Barents was an early victim of the North-West Passage. William Baffin, a humble Londoner who mysteriously obtained a wonderful education and knowledge of sea-craft, and made himself one of the greatest of Elizabethan seamen, was

the next adventurer, making voyage after voyage, farther and farther north, teaching the seventeenth century all it knew about terrestrial magnetism, giving his name to Baffin's Land, and pointing a passage to the North Pole by which the discoverer of the Pole actually went.

But Baffin was always trying to get to China round the north of Canada, and he failed; he failed gloriously, dying heroically in the Persian Gulf, where he first won English influence.

THE PATHETIC FATE OF HENRY HUDSON IN HIS LITTLE BOAT

We read elsewhere of Henry Hudson's thrilling endeavours to reach the coveted goal by way of these frigid waters. The great bay which immortalises him and keeps green the memory of his tragic end, had no bearing on the channel he sought, but the mutiny of his crew, who turned him and his little son adrift in an open boat to perish on the waters, stirred public feeling deeply, and led to further effort.

Yet for more than two centuries no other man equalled the feats of these whose names we have been considering. There seemed no way through to the North, and Baffin's feats would have gone unchallenged to the crack of doom had not later generations determined that they would not obey circumstances but rule them.

As the sea was so hostile, the problem of a northern way round was attacked from the land. The northern limits of Asia were traced on foot, and hunters, working in the great territory named after Henry Hudson, tracked out much of northern Canada, where the name of Mackenzie, a brave pioneer, was bestowed on a great river.

Knowledge was added year by year as the outcome of cruises in pursuit of whales and seals, and the demand for furs lured men farther and farther into the wilds of pitiless Siberia.

THE TREMENDOUS PREPARATIONS FOR THE GREAT VOYAGES OF BERING

The most astounding expedition of the age was that of Vitus Bering, a Dane, who was attracted to the service of Peter the Great, and was in 1724, when 44 years of age, bidden by his master ascertain if there existed a channel between Asia and America, or whether, as was thought, the two continents were one. Simon Deshinef had reported in 1648 that a great sea of water rolled between the two lands, but no one could confirm the story and so all denied it, as other facts have been denied.

It was an unparalleled effort, extending over 16 years and embracing four overland journeys of 4000 miles each, between Petrograd and Okhotsk in Siberia, for practically all material had to be carried from Europe to this remote point in frigid Asia. It cost tens of thousands of pounds and hundreds of lives, and to supply the wants of the many men who partook of Bering's labours, impoverished the food supply of all the native tribes along the Siberian coast with which the Europeans came in contact.

The first expedition comprised 500 men, scientists, sailors, carpenters, blacksmiths, and 800 horses, drawing an immense number of wagons; yet supplies ran short, and men had to eat their boots and the harness of horses before all assembled at Okhotsk at the end of 18 months. It took three and a half years from the time of starting to build and launch the first ship, and the actual voyage of exploration lasted only seven weeks.

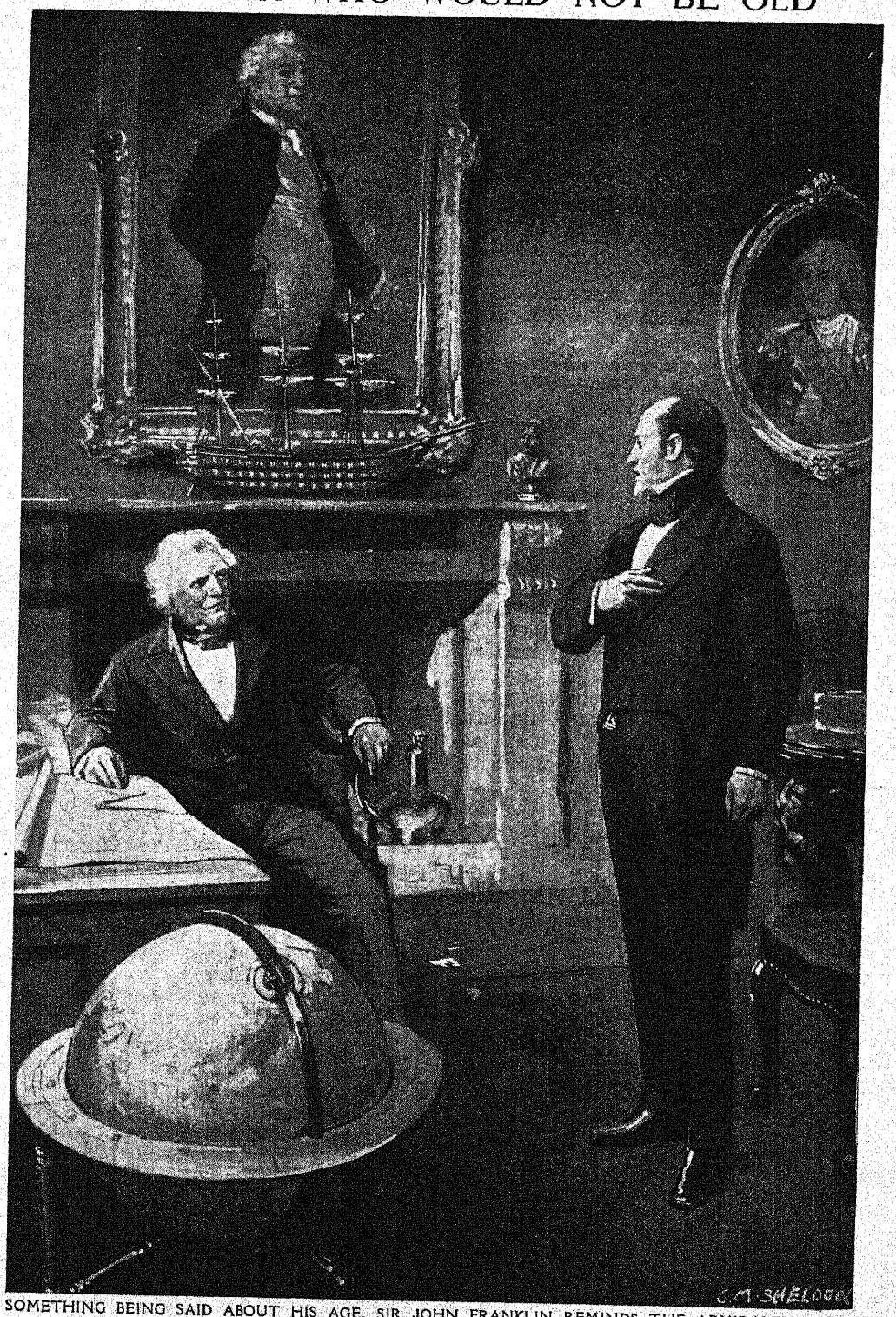
THE SAD END OF THE HEROIC BERING AFTER MANY YEARS OF LABOUR

Bering found open water where the land connection between two continuous continents should have been, but he did not sight the American shore before being driven back to winter quarters. Another attempt in the spring found the weather still against him, so he returned to Russia after five years with little to tell. But he was sent out again in 1733, and he dispatched ships to find Japan, which they did, but this expedition consumed so much of his stores that nearly eight years elapsed before he could again set sail to find America.

This poor Columbus of the East did at last find America in the East, but he never came home to tell the tale. He was blown away by storms when attempting to return to Kamchatka, and when his men were so reduced by scurvy and starvation as to be unable to work the ship, wind and waves carried the vessel right over a great gap in a reef on to the desolate shore of one of the Commander Islands.

There they wintered under upturned boats which were made to cover sandpits. There was enough meat for the killing, sea-otters and seals, but there were myriads of Arctic foxes, which stole their food, carried off their clothes, gnawed the dead, and nibbled the dying.

THE MAN WHO WOULD NOT BE OLD



SOMETHING BEING SAID ABOUT HIS AGE, SIR JOHN FRANKLIN REMINDS THE ADMIRALTY THAT HE IS "ONLY 59," AND IS ACCEPTED TO LEAD THE EXPEDITION TO THE NORTH-WEST PASSAGE

There the unhappy Bering perished miserably in his tent, mad with privation and the diseases which hardships had engendered. His name was given to the island on which he died, but it is certain that the foxes would have his poor, wasted body. Bering Strait is his everlasting memorial on the map, placed there by the reverent admiration of our noble Captain Cook, who followed where Bering had led, named the strait after its discoverer, and gave the title of Cape Prince of Wales to the most westerly extremity of America, and East Cape to the most eastern point of Asia.

THE GLORIOUS FAILURES OF CAPTAIN COOK TO FORCE A NORTHERN WAY

But Captain Cook, with all his courage and science, and with all the art by which he, more than any other man of the age, kept his men in health and heart, could not force a passage either to the East or to the West from Bering Strait. It will always require luck to do so, the luck of the warm season, the luck of the precisely right moment at which to strike through.

The key was not yet forged, though the whalers, ranging farther and farther into the mists, continued to increase learning and wealth. In 1776 the British Government offered a reward of £5000 to anyone who could penetrate north of 89 degrees, not to the Pole—for that goal was not yet contemplated—but as a means of finding this long-sought gateway. William Scoresby, a glorious name in our sea annals, the greatest of all the whalers, and a scientist and writer, did not gain the prize, but he reached beyond 81 degrees in a superb voyage of 1806, and gained further renown along the east coast of Greenland in 1822.

Throughout the days of Napoleon's power we were unable to spare hands for exploration, and it was not until after 1815 that the ordeal of braving perils in the unknown was resumed.

THE CLOUDS WHICH MEN IMAGINED TO BE A BARRIER TO THE WEST

Renewed exertions by Sir John Barrow in 1818 stimulated ardour afresh, and then a prize of £20,000 was added to the original £5000, and three grand figures in succession appeared on the scene. The first was Sir John Ross, a Wigtonshire Scot, who sailed North in 1818 on the ancient quest, taking with him his nephew James Clark Ross, and William Edward Parry, both of whom also won fame.

Exploring the bay which honours Baffin, he found it was no bay, but a sea 800 miles long and 280 miles broad, and often frozen over. Failing to progress to the north, he turned west into Lancaster Sound, and there committed a mistake which embittered his whole heroic life.

Before him was a veritable gateway to the New World, but it was obscured by clouds. He thought these were mountains, named them the Croker Range, and came home and described them as an impenetrable barrier to the West. Parry disputed his chief's theory, and the Admiralty eventually sent him north on his memorable series of voyages, three for the north-west gate, and then on the first expedition aimed at the North Pole.

Parry gained the £5000 prize. He penetrated beyond Lancaster Sound into Barrow Strait, which broadens into Melville Sound. He passed over the Magnetic Pole, and, when held up by ice, made a land journey which revealed at last open sea leading towards Bering Strait.

THE DRIFTING ICE WHICH CARRIED AN EXPLORER AWAY FROM HIS GOAL

The way was found, but Parry was not to sail it. He was barred from it by ice, as Drake was barred from the Pacific when he first viewed it from a tree-top in Darien.

Parry's sledging and sailing trips were full of thrilling adventures, perils from ice and shipwreck, and nightmare experiences. They drifted south on the ice during the night farther than his men were able to march north in the day. Here was explained, for the first time, one of the terrors which had filled older seamen's thoughts with fear of demons. They found their ships blown north, while bergs and ice-sheets drifted in the opposite direction down on them. They could not know, as Parry did, that currents carry ice even against the wind.

Parry's shipwreck was a godsend in disguise, for he got his men back in safety, and it was from the timbers and stores of the wreck that Sir John Ross, eight years later, saved himself and his crew when his own vessel was lost in the pitiless ice. Ross's second voyage covered four years with fruitful result, notably when the faithful nephew, James Clark Ross, charted the position of the Magnetic Pole.

Now was to come the crowning tragedy of regions rich in brave men's agonies, the tragedy of the Franklin expedition.

Sir John Franklin, born in 1786, at Spilsby in Lincolnshire, was an Elizabethan of modern times, well educated, warrior, scientist, statesman, animated by a courage which flames highest when the heart is hardest tried. He fought as a boy at the battle of Copenhagen, and five years later he won laurels at Trafalgar. He was with his uncle, happy Matthew Flinders, off the Australian coast; he helped the Greeks in their war for independence, and he was an inspired Governor of Tasmania. But it is for his Arctic explorations that he lives in fame.

He first sounded the deeps of Spitsbergen's waters, and then, in a journey lasting between three and four years, explored the mysterious coast-line of America's farthest north. His journey

SIR WILLIAM EDWARD PARRY'S EXPEDITION IN SEARCH OF THE NORTH-WEST PASSAGE IN 1819

covered 5500 miles, and embraced the Coppermine River and a great stretch of coast. A second foray revealed the secrets of the Mackenzie River, and the tale of the coast up to near the 150th meridian.

For this second journey of Franklin's Captain Beechey was sent by ship round from the north to sail east and try to join hands with Franklin as he pressed northwest. Only 50 miles separated the parties at the close, but ice prevented a meeting.

The story of those two trips would fill a volume; appalling cold, months of starvation, the expedition broken into small detachments, raging with hunger, with a frightful Red Indian turned cannibal lurking at the heels of one detachment.

Another 16 years passed, and then came the great expedition of 1845 to find the elusive channel or perish. Franklin offered his services, but the Admiralty mentioned his great age. "Sir," said the old lion, "I am but fifty-nine," and, so saying, he was accepted. He led forth, in the Erebus and Terror, the best-equipped exdition that had ever left our shores.

The ships might have been manned entirely by naval officers, so many were the volunteers, but that could not be; as it was, the 134 officers and men who composed the company were an aristocracy of efficiency and character.

Franklin's instructions were to follow the route from Fish River to Bering Strait. He did, and with all his little host he perished on the way. But he forged the key to the Passage. He got to a point west of that which had been reached by Frederick William Beechey sailing in from the opposite direction in the first quarter of the century. All else is mystery and melancholy. Seen by whalers in July, 1845, in Baffin Bay, the two ships vanished. The secret lay only with the Eskimos, and with them it rested for years and years.

The first three years caused no special alarm, but after that search parties began to stream out to seek the lost legion. The Government offered £10,000 for definite news of the fate of the expedition, and £20,000 for its rescue. For ten years the search lasted, and 39 expeditions sailed on the hopeless quest, at a cost of over a million sterling.

Little by little the dismal story was pieced together, from what Eskimos told

and from relics which were discovered. We know now that the two ships were seized by ice in M'Clintock Channel and drifted some 30 miles in two years. A single scrap of writing was found in a little cairn at Point Victory, dated April 25, 1848, and stating: "The Erebus and Terror were deserted April 22, 1848, five leagues N.N.W. of this, having been beset since September 12, 1846; officers and crews, 105 souls, under the command of Captain Crozier, landed here. Sir J. Franklin died June 11, 1847."

That is all. For the rest there were tales told by Eskimos of gaunt men dragging boats from foundered ships, wearily, like grey ghosts across the starving land; begging a little seal meat to keep them alive. One old Eskimo woman drew pictures in the sand of two ships to show that she had seen them, and told how the men dropped dead as they walked.

Many relics came to light; isolated corpses, some by the wayside, some in upturned boats some in tents, with guns in their hands loaded to shoot the game which was not there. There were shot and powder, and scientific instruments; there were the tracks in the snow the men had made; gloves spread out to dry after washing. Worst of all, at the last camp of death, were the evidences that the last poor, maddened survivors had been driven to cannibalism.

ADOLF ERIC NORDENSKIOLD, WHO FIRST SAILED THROUGH THE NORTH-EAST PASSAGE

Franklin's last voyage was the worst and yet the greatest. He got through to the point at which a ship from the West had sailed to the East, and the channel was proved. From every experience, however ill, there is some good to be extracted if men diligently seek it out. The tremendous new impetus which the Franklin disaster gave to exploration really opened the ways East and West.

It was the eastward way which first yielded, and it yielded to Adolf Eric Nordenskiold, who, born at Helsingfors in 1832, was driven by political persecution to become a Swede, and to give his adopted land the glory of his work as scientist and explorer in the North.

The harvest of reputation which so many had died to gain came easily to him. After two fine voyages along the north Asian coast to the Yenisei, he proved that the Kara Sea was navigable at the right season, and in the years 1878 and 1879, though held up in the ice for 264 days in sight of victory, he got out, and at last, on July 18, 1879, sailed through the Bering Strait and away across the ocean to Yokohama. Nordenskiold thus wrote the sequel to a story begun 326 years before by the expedition which carried Hugh Willoughby to his death.

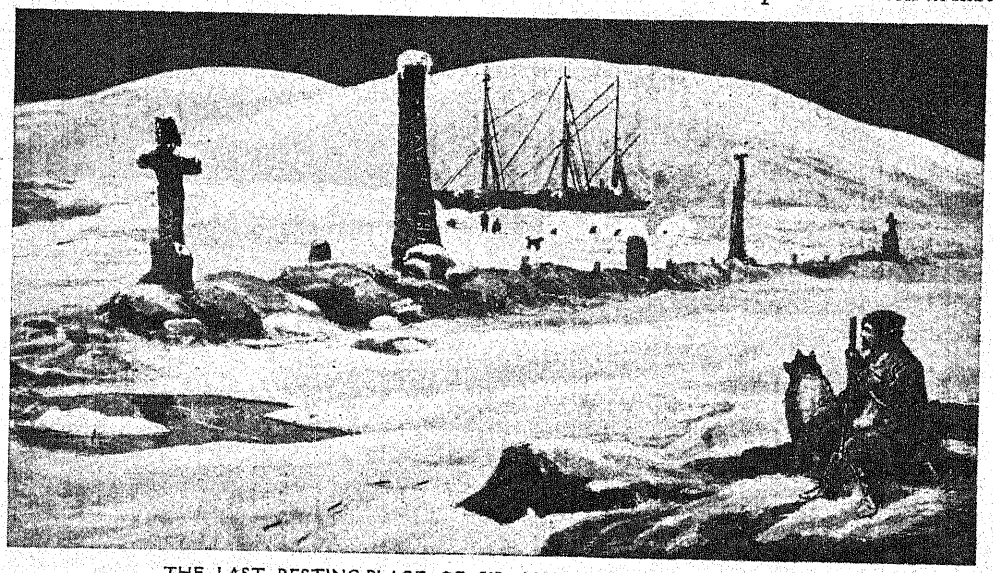
The North-East Passage was finally won, and the North-West Passage surrendered its secret in 19[illegible]06—to a Norwegian, [illegible] WHICH [illegible] FROM [illegible] of [illegible] Roald, but [illegible]ortune, gallant Roald Amundsen, who was later to snatch from us the reward for gaining the South Pole.

Amundsen sailed in a little 70-footer from Christiania, Norway, in the spring of 1903, and, pushing west by routes sanctified by the lives of his British predecessors, followed in the wake of Franklin and went beyond; across Baffin Bay, through Lancaster Sound and across Barrow Strait, down to Peel Sound, along the De la Roquette Islands, past the magnetic North Pole, then east of King William Land, with men sounding the uncharted waters the whole time.

By the middle of September he was west into Simpson's Strait, and there he anchored in safety for the winter. Two years he was detained here, and on setting sail in August 1905 he had only got to King Point in Mackenzie Bay when winter stayed him again. While his ship was thus detained, Amundsen with a sledge party travelled 1500 miles overland to Eagle City in Alaska.

Returning to his ship, he got her out of the ice again by the summer of 1906, and after a thrilling passage of 1100 miles he passed out of Bering Strait on September 1, 1906, and put into Nome, conqueror of that north-west passage which John Cabot had vainly sought to find more than four centuries earlier.

So, at last, the two enchanted ways were laid open and their mystery solved. For four centuries men had striven to get through. Now there remained nothing to be known save that the ways, though mastered, were hopelessly impracticable. Nordenskiold had to winter to get East; Amundsen had to spend three years in completing his perilous journey from East to West. But the old quest had been at last gallantly achieved. Neither route is the short cut to fortune; both are the highway of agony, peril, and death. We have sowed those northern seas with the bones of some of the bravest men who ever thrilled at the thought of a forlorn hope.



THE LAST RESTING-PLACE OF SIR JOHN FRANKLIN'S COMRADES

THE LAST DAYS OF FRANKLIN'S MEN

IN THE CASTLE OF THE SLEEPING BEAUTY

THE PRINCESS WAS DRESSED IN A LOVELY ROBE AND LAID IN A GOLDEN CHAMBER

A SPELL WAS CAST UPON EVERY LIVING THING IN THE PLACE

THE PRINCE ENTERED THE WOOD AND THE TREES BENT ASIDE TO LET HIM PASS. See page 4614

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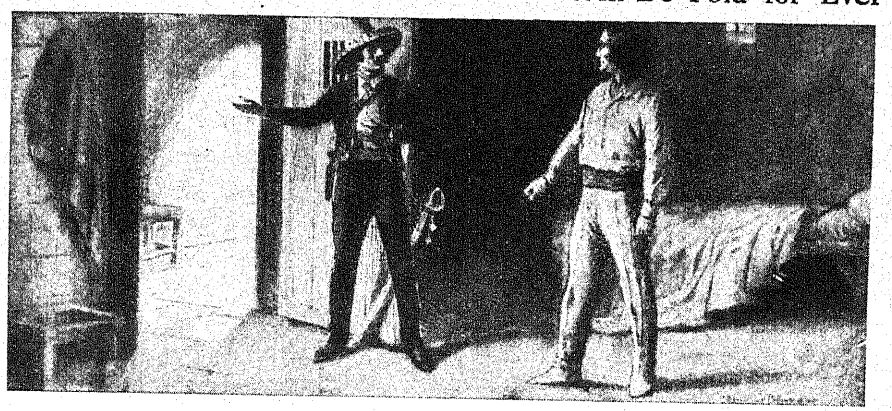
The Great Stories of the World That Will Be Told for Ever



THE MAN WHO DIED FOR MAXIMILIAN

A CLOUD of dust appeared in the distance. As it drew nearer a group of horsemen could be seen charging through it. When they were quite close their faces showed clearly enough that this was no hunting or trading party. Those stern, hurrying men were soldiers of the Mexican republic, bringing three prisoners to President Juarez.

Who were the captives hastening to trial that burning June day in 1867? The chief of them was Maximilian, Archduke of Austria; the other two were his generals, and called him Emperor.

Thirty-five years ago he had been born in luxurious Vienna, and nothing but peace and plenty seemed to lie before him. But he became a romantic youth, dreaming of great enterprises. At 22 he was appointed vice-admiral of the Austrian fleet, and three years later he was made governor-general of Lombardy-Venetia. Then came a greater plan. Napoleon the Third would lend troops and money to establish a monarchy in Mexico, and an invitation came to Maximilian from that country asking him to be their emperor.

The young man and his wife went to their throne in 1864. They soon found that they had been cruelly deceived. Only a small party wanted them; the rest of the nation was loyal to President Juarez, who also had the support of the United States.

For a short time Maximilian held his own, and showed himself to be a conscientious ruler; but nothing could win the people's hearts over to this foreign usurper forced upon them by France. When the French army withdrew the Republican troops soon overpowered the emperor's forces.

Maximilian had been deceived by certain Mexicans and deserted by France; he awaited the end at his post. The poor empress went to Europe to seek help. She was refused on every hand, and lost her reason.

So it came about that, three years after his coming, Maximilian and his last two followers were hurried to their trial. His splendid dream of state-making was in ruins; the woman he loved had been driven to a horrible doom. He can hardly have cared to live.

The prisoners were tried at Querétaro and condemned to death.

It was very early on the morning of the execution. Meija, one of the generals, an Indian, was already awake. Perhaps Maximilian was thinking of gardens and high white rooms at home, of familiar streets where the Viennese crowd would presently go bustling to work, and of the

safe, uneventful social life the Archduke of Austria might have led in his own country. Perhaps Meija was thinking of the scents and sounds of forests by night, of the wide rivers and rocky hills that would know his horse and canoe no more, of his mother's lodge, of his kinsmen's voices. Life is sweet, whether a man is born in a castle or a wigwam.

Suddenly the cell door opened. Meija started. He had not thought his last morning would end so soon, but he rose quietly to meet that which a warrior must not fear.

Instead of a group of executioners he saw a chief man on the Republican side.

He said: "General Meija, I have fallen into your hands three times, and three times you have saved my life."

Meija bowed his head.

"I have come to discharge my debt," continued the Republican. "There is a horse at the door. Pass out!"

Freedom, the fresh morning sunlight, a horse beneath him galloping for the hills—surely the Indian grasped at these things which were offered him?

But Meija asked: "And the emperor?"

The man replied: "The execution takes place in two hours."

The Indian's quiet suddenly vanished in a flash of scorn.

"So I am to escape while my master dies?" There were no words fierce enough to describe the insult. At length he pointed to the door that opened out on liberty, and gave back to his deliverer the words with which he had come to the cell: "Pass out!"

Two hours later the prisoners were taken out and shot.

On that same day Maximilian's brother was crowned King of Hungary. It is not likely that among all his treasures he had anything to match the faithfulness and loyalty of Meija to his emperor.

SHARATZ, THE WONDERFUL HORSE

In case you should ever go to Serbia you must know about Sharatz. For if you should say there "Who is Sharatz?" it would be as though someone asked in England "Who is Cinderella?" It would be terrible ignorance.

Well, the great knight Marko once saw a poor little foal suffering from leprosy. In pity he bought it from its astonished master, and set himself to cure its dreadful disease. This he did in time, but the creature always had a rough piebald coat. He called it Sharatz, which means piebald, and its pet name was Sharo.

Sharatz naturally loved his master intensely, and performed many a remarkable service for him. Often, when the hero slept or suspected nothing, the horse scented danger, and pawed the ground till Marko was roused. Once he swam the Danube. Once he overtook a mountain sprite. It was in this wise.

Marko and his dear friend Milosh of Potzerye were riding over the hills when Marko begged his companion to sing to him.

Milosh reddened and replied: "Alas, Prince, I dare not! On this mountain dwells the sprite Raviyoyla. Once she entertained me in her fairy hall, and, to my shame, I drank too much red wine and began singing noisily. Then, in disgust, she bade me begone, and threatened that she would pierce my throat with arrows if ever I dared to sing again."

But Marko persuaded him, saying, "You need not fear a sprite while Sharatz and I are beside you."

So Milosh began to sing in a voice that was as pleasant as a waterfall on a hot day. All at once from a clump of bushes two arrows came hissing, and buried their barbs in the throat and breast of Milosh.

He fell to the ground, and Marko dismounted, not to tend him, but to tighten Sharatz's girths. He whispered in the horse's ear: "Sharo, you must overtake the sprite. If you do I will shoe you with silver, and plait your mane with gold threads and pearls. But if you fail we shall both die as miserably as Milosh."

So saying he swung himself into the saddle, and Sharatz set off. Each leap the good horse took was as far as four lance-lengths. The sprite sped over the hill in terror, and when she found that her pursuer was gaining she flew up into the air. But Marko hurled his club; it struck her between the shoulders, and she fell to the ground at his mercy.

"How may I buy my life, mighty one?" she cried, with his sword point at her throat.

"By healing Milosh," replied the knight.

So she rose, and wandered about the hill, guarded by Marko and Sharatz, till she had found certain herbs, which brought Milosh back to perfect health.

Once when Marko was riding across the plain of Kossovo after a long absence, he

met a maiden who seemed to be quite young, though her hair was grey.

The knight at once drew rein and asked if her hair had been silvered by some trouble in which he could help her. She replied that a tyrannous Moor had encamped on the plain with forty followers. He had imposed a tax of 74 ducats on every wedding that took place in the district, and since the maiden and her lover were poor they could not be married.

"I have something to say to that Moor!" replied Marko, as he rode away to the tents.

When the Moor saw him approaching he thought that the hero only came to pay his wedding tax. Marko dismounted, and left Sharatz outside. Then he entered and spoke civilly to the Moor, saying that he was very poor, and could only give three ducats and the wedding presents.

"It is not enough!" cried the Moor, suddenly striking a treacherous blow. "You shall pay with your horse and your life!"

But Marko laughed at the wound, and sprang upon his enemy. The fight was short and sharp. Sharatz would not let the Moors come to their master's aid.

Presently Marko came out from the tent, carrying the tyrant's head. "With this I will pay my wedding tax!" he said.

The Moors fled before him, and the whole district rejoiced.

After a long and glorious life Marko was one day riding up a mountain when Sharatz stumbled for the first time in all his days, and tears welled from his dark eyes. Then a voice like a breeze or a sprite whispered in Marko's ear that this was the hour and the place for him to be summoned to another world.

Marko rode to the mountain top, and, dismounting, said: "O faithful Sharo! no one shall ill-use you or make you bear ignoble burdens." So he slew the horse with one merciful stroke, and buried him. Then the hero broke his weapons, and wrote a tablet, which he fixed to a tree, leaving his three purses to the man who would bury him, to the Church, and to the blind. After that he wrapped his cloak about him and lay down. Presently his spirit was called away.

Several people passed, but none drew near for fear of waking the mighty hero. But at last an old priest crept up and read the tablet. He buried the hero under a church, but he would not say where, lest friend or foe should disturb the hero's rest.

All the Serbians believe that he will waken when his country is in its sorest need, and that Sharatz will return with him.

THE TRAVELLER AND THE HERON

A WEARY traveller lay down to rest under the shadow of a fig tree and went to sleep. In the tree lived a crow and a heron, and the heron had often been warned that he would come to a bad end if he kept company with an evil crow. But he took no heed of the warning, and continued to associate with the crow.

As the Sun shifted the shadow of the tree moved away from the traveller, and he was left exposed to the heat. But the heron, seeing this, felt sorry for him, and spread out his wings and shaded the weary traveller. The evil crow, however, laughed at the heron, and then, to annoy the traveller, dropped a stone on his face and flew away.

When the traveller, smarting from the sting of the stone, jumped up and seized his bow and arrow he saw only the heron in the tree above, and, thinking that this was the culprit who had thrown the stone, he fitted an arrow to the string, and fired and killed the heron.

WHY THE TIGER HAS MARKS ON HIS FACE

A TIGER one day saw a hare sitting under a tree, and asked what he was doing.

"Oh," answered the hare, "I am keeping watch over my grandfather's gong, to see that nobody runs off with it."

"Where is the gong?" asked the tiger.

"Up there," said the hare, pointing to a large round object hanging to one of the branches. "If you like you may strike it to see how well it sounds. But let me go farther away, for the sound of the gong always brings tears to my eyes."

The tiger said he would like to sound the gong, and the hare at once scampered off down the road. When he was out of sight the tiger raised his paw and gave the gong a great blow, which shattered it. But it was a wasp's nest and not a gong at all, and hundreds of wasps at once settled on the tiger's face and stung him with such violence that he nearly went out of his mind.

The stings made brown marks on his face, and to this day all tigers have marks.

LE JUIF ERRANT

This is a French translation of the story told in English on page 1272

On raconte que Notre Seigneur portant sa Croix sur le Calvaire s'arrêta pour se reposer un instant près de la maison d'un cordonnier, mais le cordonnier renvoya Notre Seigneur en disant : " Partez, vous ne vous reposerez pas ici."

Jesus reprit sa Croix et répondit : " Je vais à mon repos et vous marcherez jusqu'à ce que je revienne."

Ainsi le cordonnier devint le Juif Errant, qui ne trouvera jamais de repos avant que Notre Seigneur ne reparaisse sur terre le jour du Jugement Dernier. L'empreinte d'une croix rouge apparut sur son front, il laissa sa femme et ses enfants, il suivit Notre Seigneur au Calvaire, puis quitta Jerusalem pour commencer son long et étrange pèlerinage.

Il alla toujours et joujours, pieds nus, un grand vieillard avec des cheveux tombant sur ses épaules et un bandeau noir autour de son front pour y cacher la croix rouge. Et il va toujours d'un même pas régulier à travers les montagnes, les déserts, et le long de toutes les routes blanches du monde. Mais un petit repos lui est quelquefois accordé. S'il lui arrive de passer près d'une église le dimanche matin au début de l'office il peut entrer et écouter.

Un jour, un tisserand de Bohème, appelé Kokot, cherchait à découvrir un trésor que son grand-père avait caché dans le Palais Royal. Et comme il creusait vainement, mais toujours avec un peu d'espoir, le Juif Errant passa.

" Votre grand-père était en train d'enterrer ce trésor la dernière fois où je passai par ici," dit le Juif Errant, " et je crois qu'il l'enfouit là-bas au pied du mur."

Kokot creusa aussitôt sous le mur et y trouva le trésor. Mais avant qu'il pût remercier le Juif Errant l'étrange pèlerin avait déjà disparu.

THE KING'S OLD FRIEND

A peasant, working in the fields one day, saw two youths approaching, and asked his mate : " Who are those two boys who are always together ? "

" One is Drona, whose father is a great sage and has his hermitage in the mountains yonder ; the other is one of his royal pupils—Drupada, he is called, and he will be king of the Panchalas one day."

" Ah, well," said the peasant, " learning is a queer thing. To think that princes should leave courts for it ! "

The boys passed on, climbing by a fountain that leaped down the rock in search of the River Ganges. Presently Drona spoke :

" Soon you will have done with schooldays, Drupada. The mountains will know you no more. And when you have gone what shall I do ? "

" You will forget me ! " said Drupada, with a smile.

" Never ! Never ! " cried Drona, with flashing eyes.

Drupada grew earnest too.

" We will be friends for ever, let us swear it—whatever may happen, as long as we live ! "

Not long after the boys had exchanged this vow a train of horsemen came to bear away the prince. For some time Drona could not care for his lessons, or his archery, or his walks—he had shared them so long with Drupada. But at last he grew accustomed to his loneliness, though he never took another friend from the illustrious pupils at the hermitage. He became very serious ; literature, philosophy, and prayer filled his life.

Years passed, and his father died. Drona did not attempt to carry on the work. He remained lost in study and religious observances. At length he married, and by and by a son was born to him. When the little thing lay in Drona's arms something stirred in him ; he woke up to the real world. The babe was a matter of far greater importance than his studies or anything else now.

Drona realised for the first time that he was very poor. He had not minded being hungry and ragged himself, but his child must have clothes and food, toys, a horse and armour later on. This poverty must be ended. Drona's thoughts turned at once to Drupada.

As he marched the last dusty miles to the palace Drona's heart quickened its beat ; memories of his boyhood awoke ; he was eager to see his comrade again.

At last he stood in the presence of the king who had been his school-mate

" What are you doing here, beggar ? " asked Drupada haughtily.

Drona laughed.

" Friend, has time so altered me ? I am he to whom you vowed lifelong friendship ! I am Drona ! "

Drupada stared awhile and then impatiently shrugged his shoulders.

"There can only be friendship between equals," he said. Drupada wanted no hangers-on. This boyhood's friend was only too obviously in need.

Drona managed to walk away, bewildered as though by a heavy blow. As he returned there grew up in the heart of this gentle scholar a new Drona, a Drona flaming with desire for revenge.

Once more Drona took to the road, but this time he set out for the dwelling of Bhishma, grandfather to two families of young princes When he heard that Drona sought his presence the old man was glad He welcomed the beggarly scholar, and asked Drona to teach the young princes.

As soon as it became known that Drona, the son of the mighty sage, was doing his father's work kings and noblemen from far and near sent him their sons. Drona asked for no gold. He taught the boys, not to be students, but to be warriors. Courage, endurance, quickness—these were the qualities he evoked in them.

At length, when he thought the youths were ready, he called them together and asked for his fee.

"We will give you anything, Drona!" cried the boyish knights who loved him.

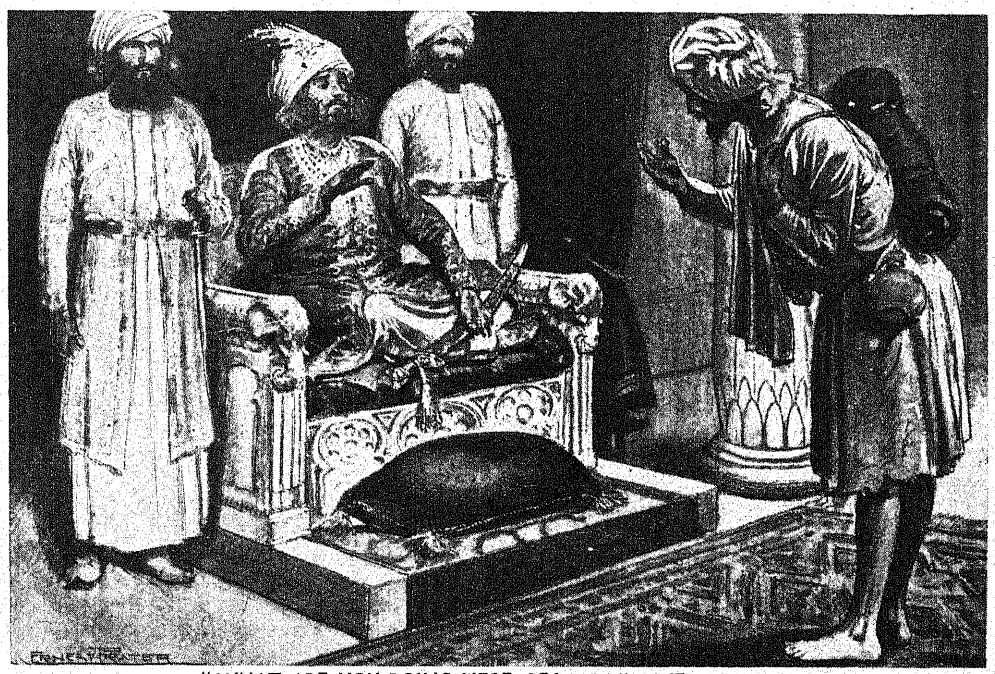
"Bring me King Drupada bound hand and foot!" said Drona.

Thus it was that the Panchala capital was raided, and the king was carried off in the chariot of Drona's favourite pupil.

"Here is your fee!" cried the boys, as they burst in on Drona with their captive.

The two men looked into one another's eyes. There was fear and rage in Drupada's, the look of a savage animal surrounded by a pack of hounds.

"I do not want your life, Drupada," said Drona. After all, his hunger for vengeance had sprung rather from his outraged sense of justice than from spite.



"WHAT ARE YOU DOING HERE, BEGGAR?" ASKED DRUPADA

"What do you want then?" demanded Drupada, the panic fading from his eyes.

"I want your friendship," replied Drona. "There can only be friendship between equals. I must take half your kingdom. You shall have the land south of the Ganges; I shall rule all that lies north of that river. Then, as two kings, we may be friends."

But, even as he meted out justice to the disloyal one and secured territory to his own son, there was sadness in Drona's voice. He still loved the boy he had played with in childhood; he would have given anything but his child to wipe out their quarrel; but that could never be.

THE SLEEPING BEAUTY

ONCE upon a time all the fairies of the country were invited to the christening of a little baby princess.

Seven fairies came, and they acted as godmothers; and a feast was held in their honour. Just as the feast began an ugly old fairy appeared. Nobody had seen her for fifty years, and, thinking that she had left the country, the king and queen had not invited her. This made her very angry, and as she sat down she muttered: "Before I leave this place I will turn all their joy to sorrow."

Happily, the youngest fairy overheard the threat, and slipped away and hid herself behind a curtain.

When the feast was ended the other fairy godmothers came to the little princess and gave her their christening gifts. The first fairy bestowed on her the gift of angelic beauty; the second the gift of angelic goodness; the third gave her the gift of genius; the fourth the gift of exquisite gracefulness; the fifth endowed her with the utmost sweetness of voice; and the last blessed her with every other gift.

"Hold! See, your gifts are useless!" cried the ugly old fairy. "For I give your godchild the gift of being pricked by a spindle and of dying from the wound."

The king and queen began to weep, but the youngest fairy sprang from behind the curtains and said:

"Do not weep, my dear king and queen. The princess shall not perish. Yet I cannot change entirely the spell which an older fairy has cast upon her. She will be pricked by a spindle. Yes! But instead of dying she will only fall into a sleep lasting a hundred years, and from that sleep she will be awakened by a kiss."

The king at once made a law forbidding everybody to use a spindle, and the princess never saw one until she was sixteen years old. Then, in climbing about one of her father's castles in the country, she came to a garret, and found there a simple old serving-woman spinning flax with a spindle and distaff. The princess took up the spindle to look at it, and the point ran into her hand, and she fell down in a deep sleep.

The king and queen summoned all their doctors, but none of them could awaken the princess. In the meantime the youngest fairy arrived. She bade the king and queen return to their palace, and leave all their courtiers in the castle. Then she dressed the princess in a lovely robe and laid her in a golden chamber, and cast a spell upon every living thing in the place. A dense thicket of briers, and brambles at once sprang up around it.

Many persons lost their lives in trying to force a passage through the trees, and at last no one dared to approach it. The king and queen died without leaving an heir, and a new line of kings began to reign; and in the wars and tumults of a hundred years the story of the Sleeping Princess was forgotten. At the end of that time the son of one of the new kings lost his way while out hunting, and wandered until he came to the Enchanted Castle. He asked who lived in this strange, lonely place. Some replied that it was the haunt of witches; others said it was the dwelling-place of a terrible ogre.

The prince did not fear danger. He tied his horse to a tree, and, sword in hand, made his way to the castle.

He entered the wood, and the briers and thorns and great trees bent aside and let him pass, and he strode on through the gate of the castle. He found it a place of strange stillness. The courtyard was covered with the bodies of horses and dogs and soldiers. In the corridors lay waiting-maids and pages, serving-men and messengers, and in the rooms beautiful ladies were stretched beside tall knights and gallant courtiers.

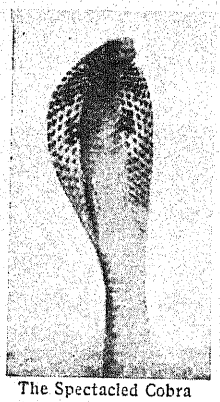
The prince trembled, but he did not turn back. Still striding on, he opened the door of the golden chamber, and there he saw a wonderful sight. In the middle of the chamber stood a great bed hung with rich curtains, and on the bed was a young princess of angelic loveliness. He leaned over the Sleeping Beauty to see if she breathed, and touched her lips with his.

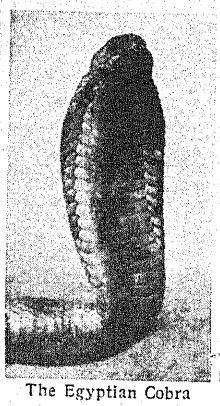
The princess opened her eyes.

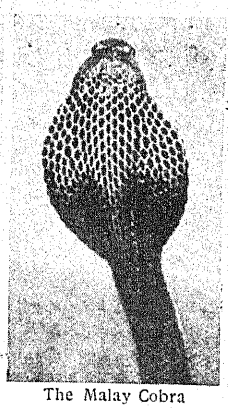
"Is that you, my prince?" she said. "I have been waiting a long, long time."

They began to tell each other the story of their adventures, but they were soon interrupted. For every living thing in the castle had awakened with the princess. The dogs barked, the cocks crew, and the soldiers took up their arms. The messengers ran along the corridors with messages given to them a hundred years ago, and the courtiers made love to the beautiful ladies.

Soon after they were married, and then they set out for the palace of the king, where they were welcomed with wonder and joy.


The Spectacled Cobra


The Egyptian Cobra


The Malay Cobra

The Ring Cobra

THE EXTRAORDINARY SNAKE FAMILY

WHATEVER may come of all the efforts of wise heads and noble hearts to lessen man's inhumanity to man, to one conflict we have been committed from the days of Eden. There can be no peace between snakes and men.

And the Lord God said unto the serpent: Because thou hast done this thou art cursed above all cattle, and above every beast of the field; upon thy belly shalt thou go, and dust shalt thou eat all the days of thy life.

I will put enmity between thee and the woman, and between thy seed and her seed; it shall bruise thy head, and thou shalt bruise his heel.

From the dawn of humanity to the present day the snake has indeed bruised our heel, and we have done our utmost to bruise his head, and more. Almost the lowest of backboned animals on land, the snakes are endlessly at war with us. With a curse on its race, the reptile does some little good for us, and infinite harm.

It kills hosts of our wild enemies, rats, mice, wild pigs, small game of the jungle, and the too-numerous deer. It is Fate to hosts of birds in the nest, which might be too many in the scheme of life were they permitted to mature.

But, though an assassin may have his intervals of useful service, we do not forget that he is an assassin, and deal with him as such. So with serpents. Every dozen years the snakes of India destroy as many people as there are in Nottingham.

There is a whole class of poisonous snakes, all fatal to human life; and there are pythons and boa constructors which have no poison, though they terrify us more perhaps from the plan they adopt to make a man into a meal. To be seized by great teeth and then wound about with enormous living coils; to be crushed bone by bone to a pulp, and then swallowed whole—imagination reels at the thought of such terrible methods.

Fear and dislike of snakes are born in human beings as is the fear of fire and deep waters. We can admire and marvel at them, but our perception of their grace, power, and competence is qualified by loathing. The emotion is instinctive, protective. Nature's own warning to us is never to accept the company of a snake until we are positive as to its character. Even England has its deadly adder.

Fortunately British snakes are few, but the world at large has some 1650 species, and they are the chief scourge of India, Southern China, and Malaya. Not only are the species many, but the reproductive powers of the individuals is extremely high. A big python may lay a hundred eggs; and a poisonous snake, in whose

body the eggs hatch, may give birth to fifty or sixty young at a time. No wonder that, with vast areas of Southern Asia still uncivilised, we cannot grapple with the snake plague.

THE MOVABLE RIBS THAT HELP THE SNAKE TO GLIDE ALONG

The ancestors of the snakes in the long ago had four limbs. Natural development led to the gradual suppression of these, and they remain now as mere vestiges in certain of the boas. On the surface of the skin towards the rear part are a pair of claws; within are small bones, the whole forming the epitaph on a snake's departed hind legs.

Gliding through narrow ways, climbing trees, swimming in river, lake, and sea, the snakes put on a different equipment. They have an enormous number of ribs, loosely united to the backbone. The free ends of the ribs are each attached to a shield of horn on the exterior of the skin beneath the body. It is by this plan that the snake walks. The ribs ripple forward, a pair at a time, and in doing so thrust forward the rear edges of the shield to which they are united. At each movement the shield grips some rough spot on the ground, and so the whole body is drawn ahead.

The snakes that climb trees often have these under-shields placed in the form of a keel, and the arrangement enables them to dart straight up a tree. The water snakes, not needing to make progress on land, have no under-shields. But be it land or water to which they are committed, no snake can raise itself into the upright loops which pictures often suggest; the formation of the backbone prevents it. The wriggling movement of the reptiles is always horizontal. This one fact disposes of the tales of great sea serpents, which are always supposed to appear at the surface of the sea, exposing great coils arranged in upward and downward loops. Snakes are not built that way.

THE VERY LITTLE HEAD THROUGH WHICH A SNAKE'S BIG MEAL MUST PASS

The food of snakes varies from eggs, insects, frogs, lizards, and other snakes, to prey as great as human beings, large antelopes, and goats. Yet the head of a snake, through part of which such a meal must pass whole, is comparatively small.

The fact is that the lower jaw is not solid bone like ours: it is in halves, united at the chin by a powerful muscle. When a victim is seized the snake draws itself over the body like a glove being made to envelop a hand. The lower jaw moves forward in steps, one half at a time. The throat and gullet of the reptile are incredibly flexible. One Zoo snake, nine feet long, has been known to swallow another of its kind only a few inches less in size.

It is the non-poisonous species which make these mighty meals. The snakes with virus are wrapped in smaller compass, and demand less food. How they developed this frightful poison is more than the wisest can say. Food which would feed a lion or a human hunter is converted in this creature's system into poison as deadly as any in the chemist's laboratory.

The venom lies in very muscular sacs in each side of the upper jaw, and in some species extends past the head down the sides of the fore part of the body. The teeth may be tubular, or they may be merely grooved. In either case there is a clear opening from the root of the tooth into the poison sac.

Generally speaking, especially in the more deadly serpents, the poison fangs lie flat down in the jaw, when the mouth is closed. When the mouth is opened to strike the teeth rise into a perpendicular position, like the baleen in a whale's mouth.

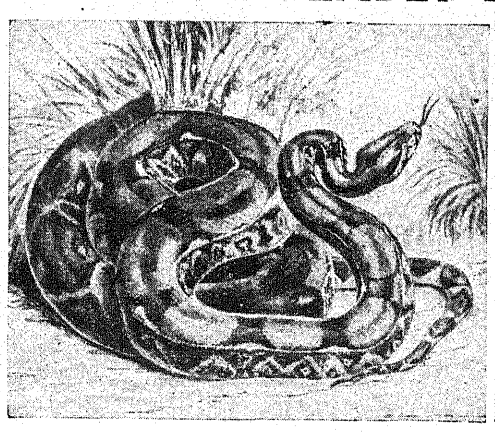
THE TERRIBLE POISON WHICH CAUSES SWIFT AND PAINFUL DEATH

The moment the fangs press on the flesh of a victim venom is forced automatically from the sacs through the hollow root of the tooth, down the channel, and into the wound. The fluid may be actually harmless to the system of the prey if taken into the stomach and acted on by the digestive juices; but, introduced directly into the blood, it is rapidly distributed throughout the body, paralysing the nerve centres, stopping the heart and breathing, and causing swift and painful death. So powerful is this venom that almost immediately after the snake has inflicted a bite the flesh round the wound becomes putrid.

Snakes live long and grow continuously, and, in order that they may do so, they cast their skins six times or more a year. They have no eyelids; the eyes are fixed within transparent scales, which come away with the rest of the skin.

Excessive heat may cause some species to become torpid in summer; cold drives them into as deep a winter sleep as that of a hibernating dormouse. They can fast for eighteen months at a time, but they

THREE DEADLY ENEMIES OF MAN



THE BOA CONSTRICTOR

THE HORNED VIPER

THE TERRIBLE ANACONDA LIES IN WAIT FOR ITS PREY

must drink if they are awake; not even the sluggish snake can exist without moisture.

Even the blind snakes drink, creatures of the underworld, sightless, toothless, harmless, living in burrows on ants and millipedes, and the larvae of insects. What a contrast there is between these insignificant fugitives from the light and the great pythons and boas!

THE ANACONDA THAT SOMETIMES GROWS TO BE FORTY FEET LONG

These monsters have keen sight and great teeth in both upper and lower jaws, and have fronted life with audacity since long before Man, in the warmer parts of Europe, Asia, Africa, America, Australia, and the West Indies.

We do well to treat with reserve unconfirmed reports of the size of wild things killed and measured in haste far from the aids to scientific accuracy.; but it is established that India and Malaya have a python at least 30 feet long, and that the great anaconda of tropical America exceeds 35 feet, and may be more than 40 feet in its majestic prime. These lengths are accompanied by a mass representing two or three hundredweight, and perhaps much more.

No wonder these reptiles can crush deer, sheep, and men. Appetites are naturally keener in the wilds than in a cage at a zoo; but even under unfavourable conditions a boa constrictor 14 feet long ate four dead lambs, each between 12 and 19 pounds in weight, and each having horns several inches long. That was a meal consumed within 24 hours, and sufficed for only ten days, when a fifth lamb was eaten. Another swallowed a goat weighing 93 pounds in an hour and a half; while a third, after eating a 31-pound goat, swallowed a 43-pound deer the same afternoon.

HOW THE BOA-CONSTRICTOR SWALLOWS THE BODY OF ITS VICTIM

The crushing of the body is not caused merely by the swallowing. When the animal is seized the snake holds its head with its fangs, wraps its great coils round and round it, and squeezes with terrific force. When pressure is released—and that is never as long as a struggle implies life in the victim—the body is reduced to the shape of a sausage.

At that stage the snake covers the animal's head with saliva to make it slippery, curves itself round it, and uses its own tail as a lever to introduce the body head-first into its own mouth. Then the snake "walks" on to the body, its own frame expanding to an amazing bulk.

The pythons number ten or more species, and Australasia and the East have some notable examples. But we need not follow the group into species, merely noting that with varying size is varying habit, some being haunters of rocks, some taking to trees. Indeed, tree boas form a series by themselves, over 12 species strong, having one versatile expert in the dog-headed boa, which is a master of the trees and swims like a great eel. There it resembles the mightiest of all, the South American anaconda.

This fearsome reptile swims superbly, sprawls in the water on half-stranded trees, and crawls through the forest amid high boughs from which it will reach down to pick up a man or a peccary.

A THRILLING FIGHT BETWEEN A SNAKE AND A MAN IN A BOAT

Though not poisonous, the anaconda is one of the most terrible of living things, to which all animal and human life is simply a meal for the getting. A friend of the writer was attacked in a boat by one of these monsters, and lived to tell the tale as the most horrifying adventure in a career of many perils.

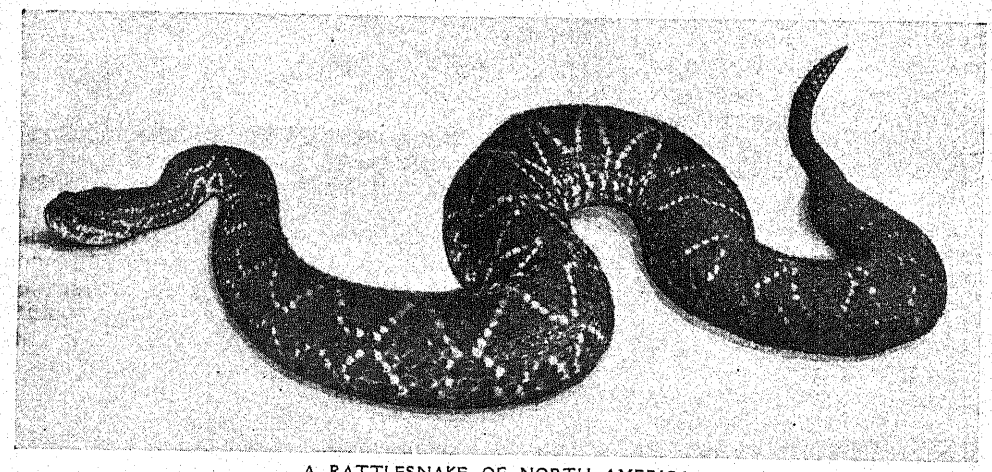
America has other big snakes in addition to her typical boas, and among these are the keel-scaled boas, famous for their arboreal feats. Then there are smaller non-poisonous members of the group, brigaded under the term of sand-snakes, common to the Orient and familiar to us as the exhibits of the frauds who profess to "charm" snakes.

There is no crushing by coils in the next group, the water-snakes, frequenting water much without living in it. They seize fish and frogs, and swallow at once.

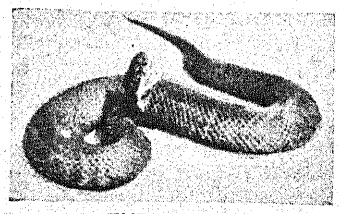
Here we are launched into a great company of non-poisonous snakes of the kind, including our fiery but useful smooth snake of Great Britain; the rat-snakes; the Aesculapian snake, which devours great numbers of harmful field-mice; wood-snakes of America; and tree-snakes of the Old World, which keep almost exclusively to the tree-tops, and lead us on to snakes which live entirely on eggs.

This is a most interesting development, for in place of normal teeth these serpents have a continuation of certain spinal vertebrae into the throat, so that when the

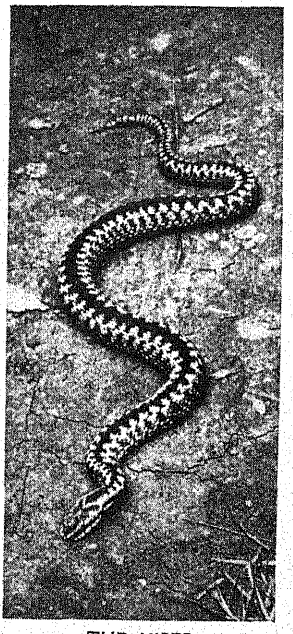
MEMBERS OF THE SNAKE FAMILY

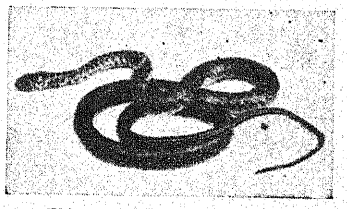


A RATTLESNAKE OF NORTH AMERICA

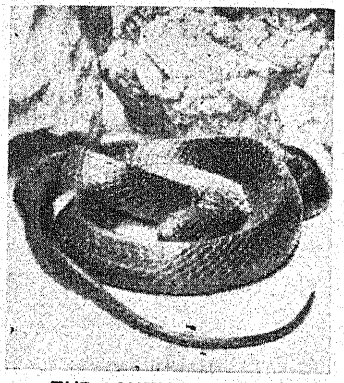


THE WATER MOCCASIN



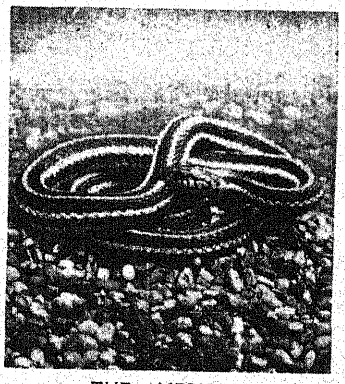


THE DARK GREEN SNAKE OF SOUTH EUROPE

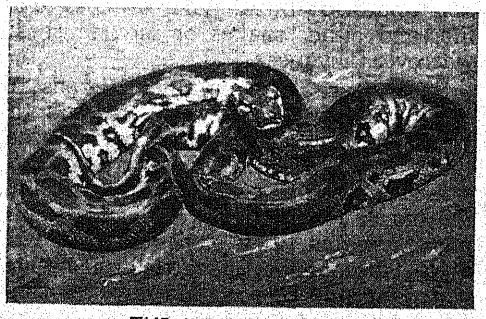


THE SOUTH AMERICAN CORAIS SNAKE

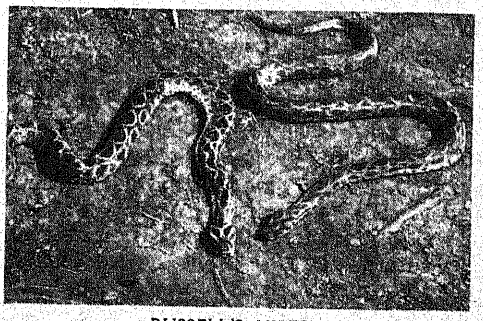
THE VIPER OR ADDER



THE AMERICAN GARTER SNAKE



THE INDIAN PYTHON



RUSSELL'S VIPERS

The pictures on these pages are by Messrs. W. G. Berridge, S. Crook, C. R Walter, and others

egg passes whole down into the gullet these teeth pierce its shell, and the contents flow unspilled into the stomach.

Then come the night tree-snakes, green snakes, whip-snakes—so-called because of their length, and lash-like slenderness, which, slow on land, seem to "flow" amid the branches of trees; masked adders which cannot climb at all; the dreaded poisonous kraits, which kill more people in India than anything but the cobras, and then the cobras themselves.

A CANNIBAL MEMBER OF THE GREAT FAMILY OF SNAKES

Six feet may seem small for a typical cobra, but it is the deadliest six feet in the world, whether the cobra be Asian or African. And, as we must have giants, here we have them in the king cobra, or hamadryad—15 feet of it, and not wholly evil, for it gorges on other snakes as it can catch them. The poisonous asp is a third species of the group. They are all fatal, capable of killing the healthiest man in half an hour if their poison be introduced into a blood vessel. Australia's death adder is a villain in the same tragic cast.

It is bad enough to be poisoned by contact, but some of the African cobras can injure at a distance. They have the power of squirting out their venom and striking an object several feet away. This cannot kill, but the fluid can cause temporary blindness, and the reptiles have a gift of marvellous accuracy in reaching the eye of a man or an animal at which they aim. There is no mammal but man which can wound at a distance.

THE POISONOUS SNAKES OF THE SEA THAT CAN ALSO LIVE ON THE LAND

We come to the sea-snakes. Of great sea-serpents, true to legend, the last is believed to have died millions of years ago, but there are comparatively small sea-snakes, poisonous wretches which can kill a man swimming in the sea, and deadly to fish and other marine life. The virulence of their poison varies with the species, but it has been found that the most powerful venom of the tribe is many times as deadly as that of the cobra on land.

There are nine genera of them, with the banded and the blackbanded as the best known. Air-breathers, they can get about on land; but their young are born alive in the water, lest eggs should be lost in the hungry stomachs of enterprising fish.

In producing their young alive the sea-snakes resemble the great viper family, a land brigade of varying power for ill, but all highly poisonous. Our British adder, conspicuous by its zigzag band of black down its back, is a true viper, capable of causing illness to the soundest of us, and death to the nervous and highly sensitive. But it is innocent compared with some of its kind—the sand-viper, Russell's viper of Southern Asia, the loathed puff-adders of Africa, the ferocious-looking horned viper of desert Africa, Arabia, and Syria, the saw-viper, the rattlesnakes, with their tail-appendages of horny quill-like substance which rattle as the reptile causes its tail to quiver in anger or warning.

This rattle is one of the most interesting possessions of the reptile kingdom. Like the branches on a deer's antlers, the quill-like rings which make up the apparatus are few in youth and single in the first year, increasing in numbers as the years increase. Besides sounding a warning, the rattle seems to serve also as a means of communication between one rattlesnake and another.

HOW THE RATTLESNAKES COME TOGETHER FOR THE LONG WINTER DAYS

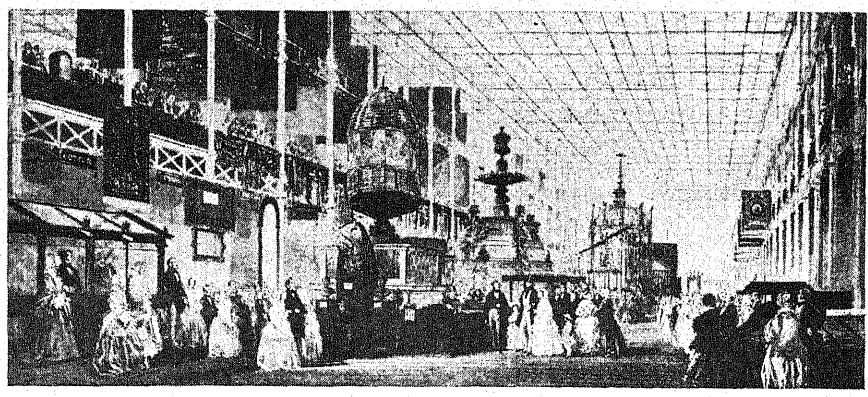
Deadly as any save perhaps the cobras, the rattlesnakes are hated and feared by all whose lives compel them to take their way into the haunts of the reptiles. But even rattlesnakes claim our respect for affection and fidelity one towards another.

Rattlesnakes delight to meet together and pass the winter days in company. They assemble in scores or in hundreds; they have been found in thousands, sleeping away the discontent of frigid days, and wriggling out into the warm air.

For such family gatherings it is known that many of these creatures must have travelled as much as thirty miles, drawn by a communal instinct.

But that one redeeming appeal to sentiment cannot save them where man is able to destroy them. They are foes to all life, and either snakes or men must die wherever they meet.

Snakes are enormously numerous in species and in actual numbers, and the poisonous ones must go, in time, in order that the world in the wilds may be made safe for humanity. Creatures debased into the likeness of mailed worms of a nightmare kingdom, they have lost their way in the race of life, embattled themselves with fang and poison, and issued a challenge which Man is compelled to accept. There is not room for them in a safe world.



From Napoleon to the Great War was 100 years, and in the middle of the century came the Dream of Peace embodied in the Great Exhibition. The Exhibition Building, seen here, is now the Crystal Palace.

FREEDOM SPREADS HER WINGS

WE who live to read these pages are in the midst of the Democratic and the Scientific Age, and it may be said that this wondrous period of time began after the fall of Napoleon.

The French Revolution, which at first had brought high hopes to every generous-hearted lover of human freedom, had in the end deeply shocked the men who believe that no cause can justify ferocious violence. It also gave ready excuses for interference by monarchs who governed countries where reasonable freedom was unknown. All the kings of Europe were eager in sternly repressing any popular movements that could be thought of as dangerous. And the intense personal ambition of Napoleon, which superseded the Revolution, and was supported by the French nation, still further banded together the autocratic governments in crushing at once the self-seeking tyrant and the freedom which had given him his chance. Freedom and its dangerous defender fell together.

There never was a moment when the world looked darker to lovers of popular liberty than when Napoleon and France were crushed by the united powers of Russia, Austria, and Prussia, who were haters of freedom, and by Great Britain, the hater of ambition wielding the sword.

As a great modern poet has said, Europe's "wormy dynasties" regilded their tinselled glories, and tried afresh to rule the world. They had forgotten none of their old ways, and had learned nothing from the outburst of human aspiration in France, so fine in purpose, so fierce and undisciplined in method.

When the kings of Europe and their advisers met at Vienna in 1815, after Waterloo, their chief aims were to repress the spirit of liberty everywhere, and to gain advantages over each other through diplomacy backed by military might.

The strangest feature of the Round Table where the reconstruction of nations was begun in 1815 was that the most liberal-minded men present were two old British Tories, Castlereagh and Wellington. They only, speaking with the voice of England, had a word to say in favour of the common liberties of mankind.

In 1919, after another great upheaval of Europe, another Round Table conference was being held to arrange for the reconstruction of nations. This time the place of meeting was Versailles, outside Paris. The Great Powers represented were

a far mightier British Empire, exemplar among free nations; the stupendous American Republic which beyond the Atlantic fronts the world at her portals with a statue of Liberty; France, a republic of more than fifty years standing; Italy, free, united, redeemed; and Japan, an empire of the Far East with eighty million people.

THE GREAT CHANGES IN EUROPE IN A HUNDRED YEARS OF HISTORY

Not one of Europe's continental monarchies of 1815 was there. All had crumbled, as monarchies, under disunion or defeat. Every crown was in the dust The hereditary rulers were fugitives. Russia was prostrate under a clique of tyrants. Austria was disintegrated. Germany was a leaderless republic at the bar of justice. The political history of the century intervening between these two conferences at Vienna and Versailles is the history of the shattering expansion of liberty, pressed upon by the incubus of governments that had made military might their god.

The general object of the Holy Alliance, as the unholy thing was called, was to discourage and suppress attempts at self-government wherever it might show itself. England, of course, did not join the movement, which came to a head in 1823, when there were European proposals to support by force the attempt of Spain to keep what had been her Central and South American possessions in subjection to the Spanish crown. At that time British popular feeling was strong in support of the demands of the Spanish-speaking Americans for independence.

The suggestion that the United States should warn European nations that their interference in the affairs of the American continents would be resisted was made by Britain and adopted by President Monroe.

THE GREAT THING BRITAIN DID FOR AMERICA LONG AGO

It is too often forgotten that what is called the Monroe Doctrine was an outcome of friendly united action by the American Republic and the British Government, which was in cordial sympathy with the cause of liberty when European autocracy was plotting to extend its paralysing sway outside of Europe. Apart from the suppression of Napoleon, President Monroe's warning was the first victory of the nineteenth century in the cause of freedom; and it had its origin in the British people's native love of liberty.

As early as 1821 the insurrection of the Greeks against government by Turkey had begun. Nearly the whole of the Balkan Peninsula was then under Turkish rule, though the Turks were but a comparatively small minority of the population. Not till 1830 did Turkey acknowledge the independence of Greece, after the combined British, French, and Russian fleets had destroyed the Turkish fleet in the Bay of Navarino. Thus Greece, as was fitting for historical reasons, led the way towards the freedom of the non-Turkish part of Europe. The completion of that freedom covered a century, and cost a dozen wars, with massacres almost as fatal and futile as wars. First Rumania, then Serbia and Bulgaria, became free by degrees, and the Great War of our time brought almost complete redemption from the rule of the brave but implacable Turk.

The part played by the free nations of Western Europe in the drama of emancipation for the Balkan races was singularly inconsistent. The enthusiasm for freedom, which rose high when Greece was the oppressed country, did not extend to peoples with a less-known story. Rumanians, Serbians, and Bulgarians created little interest in the West.

WHY RUSSIA ACTED AS A BIG BROTHER TO THE LITTLE BALKAN COUNTRIES

It was from oppressed Russia that the movement for releasing the Balkan races from Turkish rule began, and the source of the movement was ambition playing on racial and religious feeling. Only in the later stages of the Balkan drama was the sympathy of Great Britain enlisted there on the side of human freedom. Before this the Balkan wars were chiefly regarded as moves on a political chessboard in a game played by Russia against the Turkish Empire. British partisanship, then regarded as statesmanship, was on the side of Turkey.

Tsar Paul, the half-mad ruler of Russia, early in the century conceived the idea of wiping out the Turkish Empire, and suggested to Napoleon that they should together halve the risks and labours of the task and divide the spoils, instead of fighting with each other. It was this dream that ruled the political West.

In the hearts of the Russian people similarity in race and religion made the support of the Christian peoples of the Balkans popular, but the diplomats of Britain and France saw chiefly in that

support the far-reaching effects of the Tsar Paul's ambitious dream.

The result was that Britain, France, and Italy (which was just rising into freedom) fought the Crimean war on the side of Turkey against Russia in support of the Balkan races, and later, when Turkey was on the verge of a complete overthrow, England protected her by an armed demonstration, to delirious cries of "The Russians shall not have Constantinople." As Lord Salisbury, the British Foreign Minister of those days, admitted before he died, we "backed the wrong horse" both from the points of view of sound diplomacy and of human freedom.

It was autocratic Russia that gradually freed the Balkan peninsula. While England slowly repented and veered round to her traditional love of freedom, France watched the drama unmoved, Prussia sullenly remembered her suppressed Poles, and Austria, looking out briskly for annexations as the Turkish power crumbled, seized province after province.

THE INSTINCT OF FREEDOM THAT WAS WORKING IN MEN'S MINDS

All the while, however, the instinct of freedom that has now established four independent nations where only Turkish mastery existed a century ago, was working in the minds of the people, and neither imperial power nor imperial dreams could crush or charm it away.

That instinct of freedom was working everywhere in Europe, and its struggles and triumphs make up the political story of the century between the wars of Napoleon and the Great War of our own time. In the less free nations this instinct showed itself in insurrections and wars, and in the more free nations in extended voting power and the reforms which democracy naturally demands. In the more powerful countries, after Waterloo, only England and France had any belief in the purifying power of liberty.

France had by far the more democratic constitution, thanks to the Revolution, yet she tamely accepted the incompetent Bourbons back as her kings, changing, however uneasily, from royal family to royal family till she arrived at a second experience of Napoleonism. Yet she could not find a man worthy to be her king. Neither the houses of Bourbon nor Orleans nor Bonaparte had bred a discoverable king, and so, after the second Napoleon had been lured by the German Bismarck to tragic national defeat, France went back to the Republicanism that gives freest room to her effervescing spirit. But all the while France was free. At any moment she could have realised her wish if it became urgent. She had no bondage except to officialism.

HOW THE POWER OF THE PEOPLE SPREAD IN ENGLAND

England was far less free in the sense that her people could not, in the mass, influence directly the government of the country. But in her slow, piecemeal way she was steadily proceeding, all the while, from reform to reform. Freedom kept "broadening down from precedent to precedent." Liberation came to her in many forms. She gave freedom to her slaves, and full citizenship to Jews and Roman Catholics. She gradually extended the power of the people until, in our own time, it became the most absolute ruling influence, through over 20 million voters of both sexes. She extended the area of government over the poverty of the people, over their health, over the needs of old age and the education of the young. She freed the land from many hampering restrictions.

These and many other urgent reforms were not won without internal strife of words, and sometimes of persecution. Each reform caused the most terrible forebodings which always proved to be baseless. The programme of the advanced men known as Chartists in the middle of the nineteenth century was resisted by displays of military force, yet it became accepted with universal satisfaction in the end, so that all but one item in the Chartist programme is now the law of the land; and this one item is unimportant and impossible.

THE RING OF FREE BRITISH NATIONS THAT ENCIRCLES THE EARTH

Not only in Great Britain, but throughout the rapidly growing British Colonies overseas, political and religious freedom became firmly established, until the world was ringed round by British lands with institutions based on a fervent love of liberty. Nor were these victories for freedom won only on behalf of political and economic causes.

Thought itself, and the sublime instinct of religion, the sources of all true progress, were gloriously broadened and refreshed. New conceptions of Life, its source and

its marvellous progress, and thrilling vistas of far-reaching hope were welcomed. "Lo! Creation widened in man's view" Religion became a more lofty incentive as man's view of his relation to God was set free from the accumulated errors of past ignorance. In all these advances, common to the civilised world, Great Britain took a noble part. In the end she always proved tolerant, generous, and trustful of freedom in mind as in government, believing it to be the right path.

The path towards freedom was, however, a very difficult one for the nations whose rule a hundred years ago was essentially despotic.

The great central and eastern nations of Europe were deeply pledged to military rule. Russia, until far on in the nineteenth century, was a land of slavish millions blundering along towards vague ambitions. That was the character of the Russian advance across northern Asia and the Turkoman steppes, and into the lands about the Caucasian mountains. Austria, the inheritor of the dim glories of the defunct Holy Roman Empire (which was neither holy, nor Roman, nor an empire), ruled many restless races, chiefly of Slav origin. She sought to wield a dominating influence over the many German States ruled by petty princes.

THE BULLYING NATIONS WHICH TRIED TO CRUSH THE LITTLE PEOPLES

Prussia, grimly and steadily rising into military power, was Austria's rival. Under these conditions the suppressed races, some of which had once been great, had little chance of recovering their independence, but the desire for it broke out again and again in insurrections usually quite futile. Poland, divided between Prussia, Russia, and Austria, broke at intervals into hopeless war. Hungary, led by patriots like Kossuth, fought desperately against her master Austria.

Italy was divided into weak States, badly governed, and the peninsula was invaded, as if by right, from east and west. France claimed the protectorship of Papal Rome. Austria dominated the north-east, and, though one of the politest of nations, seemed to have an extraordinary knack of arousing bitter opposition. But Italy had some fine patriots—the profound thinker Mazzini, the dashing fighter Garibaldi, and the cool statesman Cavour—and circumstances favoured her. Partly through the restless adventuring of the little Napoleon, who wished to make a name in the world, but finally, owing to the clash of war, first between Germany and Austria, and then between Germany and France, Italy gained her almost complete unity of freedom, and then made it complete by taking sides against Germany and Austria in the Great War.

THE GREAT OPPORTUNITY THAT HAS COME TO MEN AND NATIONS IN OUR TIME

Strange to say, the greatest of all the menaces to human freedom that has ever overshadowed humanity was destined to have the most gloriously liberating influence, if only the world will use aright the opportunity it has brought. That menace came through the militarising of the German mind by Prussia, acting under the guidance of Bismarck.

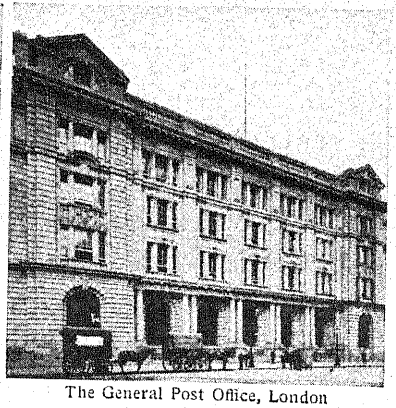
By challenging Austria in battle, Prussia thrust her forth from Germany. Then, leading united Germany against France under the feeble second Napoleon, Prussia trod France underfoot. These doings spread through the world a belief in German invincibility, and the feather-headed Kaiser William the Second spent his life in toying with a passion for world-power. Backed by his invincible legions, why should he not be a modern Alexander? Debauched by a belief in military glory, the German nation accompanied her Kaiser willingly along the way to world-mastery.

That, and no less, was the final stake of the Great War. Germany failed; but the banded might of the whole world was needed to shatter the onset she made. As a result of the war the rescued world arose into freedom, and today Europe is free if only her peoples and governments realise what freedom means.

WILL THE GREAT GIFT OF FREEDOM BE WISELY USED?

A notable thing has been the independent rising into a civilised freedom of Japan in the Far East. It was Japan that, after springing into a new life by an internal impulse, first curbed the ambition of Russia. Even China is seeking, though with faltering steps, to share the world's freedom. The fostering care of Great Britain has offered opportunities of self-respecting liberty to the ancient lands of India and Egypt, and to the Arab race. Will the great gift of freedom in Europe and in the ancient lands of the East be wisely used? How can it be used? These are questions of supreme importance, and they must now be examined.

Posting a letter


The General Post Office, London

The letter arrives

THE POST OFFICE AND HOW IT WORKS

ABOUT eight o'clock in the morning is an interesting time along every street in Great Britain, from Market Jew Street in Penzance to Bridge Street in Wick. At that hour the whole country cocks its ear for the knock of somebody who does not wait for an answer.

People are watching for the postman from the balcony of many a city flat and from the porch of many a country cottage. His coming is welcomed by prince and by peasant. Yes, and he is awaited with the same impatience farther afield, on the stoep of a South African farm or the verandah of an American wooden house, or under the wide eaves of a Swiss chalet. But in some places there is no one to receive him, for in Canada you may find the postman leaving his letters in a box in the wilderness, with not a solitary home in sight.

Not always does he come with a knock. In Chinese villages he rings a handbell. In Indian bazaars he blows a bugle. On the Great Lakes he is announced by the siren of a midget steamer, and the letters for delivery are put in a bucket lowered over the great vessel's side.

The postman spins a web of communication as wide as the world. His walk is round the globe. You may find him up at Point Barrow, in Alaska, where he takes the Children's Newspaper every week. You may find him at Stanleyville, in the Belgian Congo, almost dead on the Equator, which is the terminus of an air mail. There is a postal line now connecting Lhasa, the capital of Tibet, with the rest of the world ; there is another connecting Kabul, the capital of Afghanistan.

Britain's 80,000 postmen go mostly on foot, but those who carry the post far off use many means of locomotion. In the Far North they may harness the reindeer, in the West they paddle the canoe, in the East they ride the camel. They may go on skis in the Andes, in dog-sleighs on the Russian steppes, in junks on Chinese rivers, in sulkies in American backwoods. Instead of the crimson van so familiar in London, they have in Sicily a donkey team decked with tinsel finery, and in Siam an elephant with a scarlet saddle-cloth. On ninety thousand miles of road in India the mail is carried still by 26,000 runners—men wearing a short white cotton coat and a red turban, and carrying a spear with tinkling bells attached. Many stories are told of the devotion of the runner, to whom the mail-bag is almost a fetish, to be protected at all costs. His heroism has been sung by Kipling :

Is the torrent in spate ? He must ford it or swim.
Has the rain wrecked the road ? He must climb by the cliff.
Does the tempest cry Halt ? What are tempests to him ?

The Service admits not a *but* nor an *if*.
While the breath's in his mouth he must bear without fail,
In the name of the Empress, the Overland Mail.

In our cities the postman may be nearly blown away at gusty corners, or may stumble on slippery pavements, but to deliver the letter you have posted in the foreign box may mean his risking death from beasts of the jungle or from wandering criminals; from an avalanche, or a blizzard, or a swollen river. Its carrier may have to make his way through swamps and deserts, over storm-swept mountain passes, and across the ooze of tidal creeks. Even to deliver a letter in the British Isles may not be without adventure, if it means setting out in a cockleshell of a boat to a lighthouse on a rock or to a ship in the roads. To get a letter from London to our northernmost lighthouse, off Unst in the Shetlands, takes five or six days, as long as to get one from London to Athens.

THE POSTAGE STAMPS THAT WOULD GO ROUND THE EARTH FIVE TIMES

And all this risk and effort is undertaken—for what? To find a certain front door and poke a letter through, a letter which, although it may sometimes bring tidings of life or death, good fortune or ruin, is far oftener a commonplace epistle, perhaps only a circular, on which, as a fee for all this service, a penny or two has been paid, or a few centimes, or reis, or copecks, or piastres, or sen, or annas, as the case may be.

It is worth while remembering, when we think of these trifling coins, that it was England which led the way in cheap postage, thanks to Sir Rowland Hill, who introduced the penny post in 1840. In Britain, too, about the same time, the postage stamp was born, and now the postage stamps sold at our 23,000 post offices in a year would go, in one strip, about five times round the Earth.

It costs the Post Office £50,000 a year to make the water-marked paper for stamps, £76,000 for printing them and gumming, and another £26,000 for making postcards. The uniform of the postmen (but this includes that of the telegraph boys as well) costs nearly three-quarters of a million; mailbags consume over £150,000, sealing-wax £1400, and the ink with which the stamps are defaced another £3000 a year.

The post goes back to very ancient times. The name comes from the Romans, who had a courier service along their famous roads, and set up a post at the points where the courier changed horses.

HOW THEY SENT MESSAGES IN THE DAYS OF LONG AGO

The old Persians had a riding post in the sixth century before Jesus, and King Darius, of whom we read in the Bible, was the first postmaster-general on record. Before he came to the throne he was in charge of the elaborate postal system which connected the Persian capital with all parts of the empire. When the Arab traveller Batuta visited India in the middle of the fourteenth century he found an organised system of couriers. Marco Polo, visiting China about 1280, reported that China had ten thousand post offices; she has only a thousand more today.

In England there have been posts of a kind since long before "Kyng Rychard dede a lettre wryte," but the founder of the postal service in something like its present character was Charles Stuart, who proclaimed a running post between London and Edinburgh, to go and come back in six days. This post was to take "all such letters as shall be directed to any post town in or near the road." The Road is the word used in the Post Office to this day to describe a postal route, whether the letters go by road or by rail, and even after nearly a hundred years of railways the Post Office spends £1,500,000 a year on conveyance by road.

THE LETTER THAT DANIEL DEFOE SENT EIGHTY MILES FOR TWOPENCE

Very gradually the post hastened and cheapened—though it can hardly be said that postal rates were excessive even in the reign of Charles the Second. When the author of Robinson Crusoe wrote to thank a titled patron, it cost him only twopence to send his letter eighty miles. The mails at that time were carried on horseback at five miles an hour over six great roads. The foot and mounted couriers at length gave place to the mail coach, and a brave sight it was by the end of the eighteenth century to see sixteen mail coaches leave the General Post Office every day, each accompanied by an armed guard. In those days, which are not so very far away, the postman was a more splendid figure than the one we met this morning. He wore a scarlet coat, a blue waistcoat, and a tall hat with a gold band round it.

But here at last is the postman, rat-tatting next door, and now he is at your gate. What have we? Three for father, two for mother, one only for the little lady, but that from a very important address: Fleetway House, London, E.C. 4.

THE MILLIONS OF POSTAL PACKETS THAT ARE DELIVERED EVERY DAY

Now, how did that letter get to you? What magic brought it? How has it come about that from the 75,000 places in Britain in which letters were posted yesterday, out of 18,000,000 postal packages which have to be delivered today, this, the only one addressed to you, was picked out, and found its way to your door in South Kensington, S.W. 7?

There was an old woman in a village in India who worshipped with folded hands in front of the familiar red letter-box. To her it stood for a supernatural power which conveyed her letter to her son over the hills at Srinigar. Well, it is not supernatural, but it is truly wonderful. Let us follow this letter from Fleetway House. It was posted at a pillar-box in the House itself, not very many yards away from the spot where the first pillar-box—a squat construction inviting boys to play leapfrog over it—was set up in 1855.

Once posted, the letter was delivered into the charge of His Majesty. Until a letter reaches its destination it is the property of the King. Even the sender cannot get it back to add a postscript. Generally speaking, no one may open it except the person to whom it is addressed, but if anything criminal or treasonable is suspected, the Home Secretary in his own handwriting may require it to be opened.

THE MAGIC WORDS THAT ALLOW THE MAILS TO PASS

It is the King who delivers our letter to us, though, the work being too much for any one man, the King commissions a liveried servant to do it for him, in this case the cheerful postman who, if you notice, wears a little crown in his cap. But it is the King's business, none the less. "On His Majesty's Service" is the proud password for the mails through any traffic barrier. There are times when the mail-van is the only vehicle permitted to share the highway with the King's state coach. It is, indeed, just as much the King's coach as that gorgeous vehicle, lined with scarlet velvet, in which he rides to open Parliament. Letter-carrying is the monopoly of the Government. With some exceptions, such as carrying a letter for a friend or an employer, it is an offence against the realm for a private person to carry or deliver letters.

All this time we have been waiting by the pillar-box. At a stated hour the postman comes to collect the letters, opening the box with a key of which there is a duplicate at the head office. He takes the letters in his bag to the greatest post office building in the world, where five million letters a week are dealt with. This is the King Edward Building of the General Post Office, the newest of the group of buildings known everywhere as St. Martin's-le-Grand. Here the postman turns out the letters, and is careful to turn his bag also inside out, so that no letter has a chance of hiding itself.

Our letter is now one of a vast accumulation from the various posting-places in a district in the heart of business London.

A GREAT LONDON POST-BOX WITH OPENINGS FIVE FEET WIDE

Some arrive by bags and others by baskets. Those coming by baskets have been posted through the five-feet wide openings in the King Edward Building itself. Down these openings they toboggan into a large basement and are collected in baskets which are sent on endless cables to a sorting-room on the ground floor if they are for London, or on the first floor if they are for the country.

The clerk who posted our letter for South Kensington was its first sorter, because he was careful to place it in the special receptacle for London letters. In the great sorting-room where the London letters are dealt with the letters are marshalled on a running cable, those of unusual size picked out and stamped by hand, while the others are collected in batches and whirled with incredible speed through an electrical machine which defaces the stamps and marks each letter with the place and time of posting. Before you can say Postmaster-General this machine has picked out a dozen letters, one at a time, and obliterated the King's image on every one of them.

The letters are then taken away for the first sorting. Several hundred sorters are employed in this building. They stand in front of rows of small shelves and pigeon-holes, they are overlooked in every direction by large clocks, and at one elbow they have carriers bringing them fresh piles of letters, while at the other elbow postmen

take away those that are sorted. At a speed which may reach 200 a minute the sorter separates the letters into divisions corresponding to the districts in the London area. The London postal service covers some hundreds of square miles, twenty miles from north to south and twenty miles from east to west, and it is divided into eight head districts which are indicated by the familiar initials E.C., S.W., and so on, and attached to these are a number of delivery districts, 115 in all.

This letter from Fleetway House which we have been watching—unless, indeed, which is most likely, we have lost sight of it by this time—goes along the road for the south-west. Letters for the Prime Minister and the King go along the same road. But in the second sorting they part company, for these gilt-edged letters are destined for S.W. 1, and our own for S.W. 7; South Kensington, Sub-district 7, in the south-western group.

THE AUTOMATIC TRAINS THAT CARRY THE MAILS UNDER GROUND

The sorter rapidly divides the letters, this for Battersea, that for Chelsea, the other for Fulham. Our letter goes into the South Kensington bag, and at the appointed hour one of the mail vans carries it to the South Kensington office, where it is finally sorted into the particular "walk" of the postman who delivers it.

To carry letters across London the Post Office has a tube railway unlike any other tube railway in existence. It is worked by electricity, and its little trains run for six and a half miles through a tunnel nine feet across. The trains are small trucks carrying letters and parcels, and the engines, which have no drivers, are controlled from the stations. They run at a speed of 25 miles an hour, and during rush time the trains follow one another at intervals of a minute. This railway, begun in 1913, was delayed by the war, and was approaching completion when these pages were printed. Much more than £1,000,000 has been spent on it. Starting from Paddington, running under the west central office in Holborn, the great sorting office at Mount Pleasant, the east central office at St. Martin's-le-Grand, and the office at Liverpool Street Station, its end is at the eastern district office in Whitechapel Road. By it the mail can go from east to west of London, or from west to east, unhindered by traffic blocks or fog. The idea is really much older than 1913, for fifty years ago a pneumatic tube was constructed between the G.P.O. and Euston, and it still remains, a derelict conduit, under Holborn and Tottenham Court Road.

London, of course, whatever Londoners may think, does not cover the whole of the map. Suppose we turn the picture round and follow a letter posted in London for a destination in the country.

THE TRAIN-SORTERS WHO WORK WHILE TRAVELLING THROUGH THE NIGHT

The magic carpet is today supplanted by the travelling post-office, which runs along every main railway line in the country. Three million miles a year across the land do these post-offices travel, with their burden of sentiment and business, cheer and pathos, expectation and disappointment, affection and formality.

The letters for the country receive their first sorting at the London offices. From central London all country letters are sent to the great sorting office called Mount Pleasant, at Clerkenwell. They are separated into divisions, each division being the locality served by a particular railway system, but letters for the big towns are also put by. Afterwards, on the train itself, the letters are made up for groups of towns and rural districts along the road. While the train sways through the night the sorters are in front of their racks re-sorting the letters given into their charge at the starting-point, or received by the train on its journey; and behind the sorters are suspended the bags which will be filled and given out at the proper time.

HOW A TRAIN PICKS UP THE LETTERS WITHOUT STOPPING

On the journey from London the express may stop at no more than a dozen stations, but the mail-bags have to be taken in and given out at many others. Often the bags are taken in or delivered while the train is in motion. As the train approaches a station at which it does not stop a strong net is extended from the side of the mail coach, and a leather pouch, which has been suspended in readiness from a pedestal at the side of the rails, is deftly unhinged and caught in the net. At the same moment, into a net on the ground, is flung the mail which the train has brought for that locality, and this exchange is effected without any slackening of train speed.

The Post Office enlists in its service not only the express train but the steam packet. Fifty mail packet services regularly operate to convey the post, not to the

continent, but between different places in this British archipelago of ours which the waters divide.

Besides these services there are the steamers which carry mails between British ports and the continent; they make four thousand voyages with mails in a year. The oldest sea route for mails is the crossing from Dover to Calais, by which go the letters for France, Switzerland, Italy, Spain, and Portugal, to be sorted on the way. The letters for Belgium, parts of Germany, Serbia, and Turkey, go from Dover to Ostend. For North Germany, Norway, Sweden and Denmark, the letters go from Folkestone across to Flushing.

Some mails have to go a long sea voyage. The British mail to South Africa runs to 1500 bags a week, or about a hundred tons. The mails which cross the Atlantic to New York bring to that city eighty million separate pieces of post in a year, enough to fill two thousand mail vans. On board the Atlantic liners there is a small post office staff sorting, perhaps a thousand sacks of mail, resacking it for the fifty postal districts of New York City and the hundred or more postal divisions of the United States. The Indian mail, which goes by the P. and O. boats, is not sorted on board, but three hundred men are waiting for it when it arrives at Bombay, and within four hours it is ready for dispatch to every corner of India.

WHAT THE INSIDE OF THE PILLAR-BOX IS LIKE

It is always pleasant to know exactly when the letter you have sent will be received. From London to Paris the transmission of the post ordinarily takes about ten hours, to Rotterdam eleven, to Antwerp twelve, to Berlin a day, to Madrid two days, to Bucharest three days, to Madeira four days, to Tangier five days, to Constantinople six days, to New York a week, to Jamaica a fortnight, to Adelaide a month. The post goes to Germany four times a day, to France three times, to Holland twice, to Eastern Europe once, to Abyssinia once a week, to Costa Rica once a fortnight, to the Ascension Islands once a month, to Iceland "as opportunity offers," to Pitcairn Island perhaps once a year.

But now the winged postman has come and is turning time and distance, as he turns his mailbags, inside out. A letter sent from London to Baghdad by the ordinary route takes from 28 to 30 days, but sent in the ordinary way to Cairo and thence by air it may take little more than one-third of the time. The air mail in this country began in 1911, at the coronation of King George, when letters were "flown" between Hendon and Windsor.

To say that the Post Office carries a letter to the other side of the street or the other side of the world is only to suggest the skeleton of its service, and the Post Office is a thing with many human touches about it. The poorest missive in the meanest envelope is dealt with as carefully as a letter from the King. For letters which come open or are damaged in transit there is a letter "hospital," where they can be patched up to resume their journey. The hospital has a bigger space in the parcels office, for string will come untied, and brown paper will tear, and bottles will break. The Post Office carries nearly 120,000,000 parcels a year; and compensation is paid in about ten thousand cases.

Again, the Post Office has a "blind" department, to which go the letters with difficult addresses, though we are glad to know that the Post Office has decided not not to bother in future with puzzles with which some foolish people like to harass hard-working officials. Formerly it used to be a point of honour that as few letters as possible must go into the black

bags as "dead." The classic score in this department was the delivery to Lady Day, the wife of a judge, of a letter addressed to "March 25." Here come the children's letters addressed to Santa Claus, whose address, by some unaccountable oversight, is not known to the G.P.O. When the writer went round this department he was shown a letter addressed in German to "Any good, kind gentleman, London." Such letters as these, however, are not now delivered; the Post Office has much better things to do.

AN IMPORTANT THING THAT SHOULD BE TAUGHT IN EVERY SCHOOL

Funny things are sometimes discovered in the G.P.O. When the writer of this article was in the King Edward Building, he was shown stacks of hundreds of envelopes, all properly addressed and stamped, but empty. By strict rule the Post Office should have delivered the empty envelopes, but departmental rules have to be followed with common sense, and the piles of envelopes (on which the postage must have run to £3 or £4) were held up for inquiries.

The duty of addressing letters plainly and sufficiently, and stamping them in the top right-hand corner, should be taught in school as a matter of good breeding. An address can say too much as well as too little. It would not do for the Post Office to have many addresses like this—an actual example which, being Oriental, may perhaps be forgiven:

> If the Almighty pleases, let this envelope, having arrived at the city of Calcutta, in the neighbourhood of Kulutollah, at the counting-house of Sirajadin and Alladad Khan, merchants, be offered to and read by the happy light of my eyes, of virtuous manners and beloved of my heart, Mian Sheikh Inayat Ali, may his life be long!

Wonderful as the Post Office is at finding people, there are times when it lapses. When Mr. Kellaway was Postmaster-General, a letter was addressed "Mr. Kellaway, London," and was returned, "Not known."

HOW A MAN CAN BE SENT THROUGH THE POST AS A LETTER

Those simple words "Please forward" on an envelope will send a letter pursuing the addressee tirelessly across the world, and he will have only a small charge to meet when it catches up with him; there would be no charge if every country, like Britain, carried re-addressed letters free. Some of the services of the Post Office are unknown to numbers of people. It is said in the regulations that no live creatures can be sent by post except bees, which must be securely packed, and that nothing can be sent without an envelope or some kind of covering except game; but this cannot be strictly adhered to, for a man can post himself! If he should lose his way in a strange city, he can go to the nearest post office and be delivered at the proper address as an express letter.

The Post Office on its postal business alone, without counting its telegraphs and telephones, turns over more than £40,000,000 a year. On the carrying of letters by rail it spends more than £2,500,000 a year; on carrying parcels by rail rather more than this. To carry letters and parcels by road costs £1,500,000; by packet nearly £1,000,000; and by air £7500. The Post Office spends £150 a year on taking the mails between Southampton and Cowes in the Isle of Wight, £200 on taking them between Invergordon and Cromarty, across Cromarty Firth, £110 on taking them to the Orkneys. It collects, conveys, and delivers each letter at a cost of a little less than 1¼d.

It would be easy to grow warm in praising the Post Office, the way it leaps the dividing seas and frontiers, bringing separated people close together in spirit.

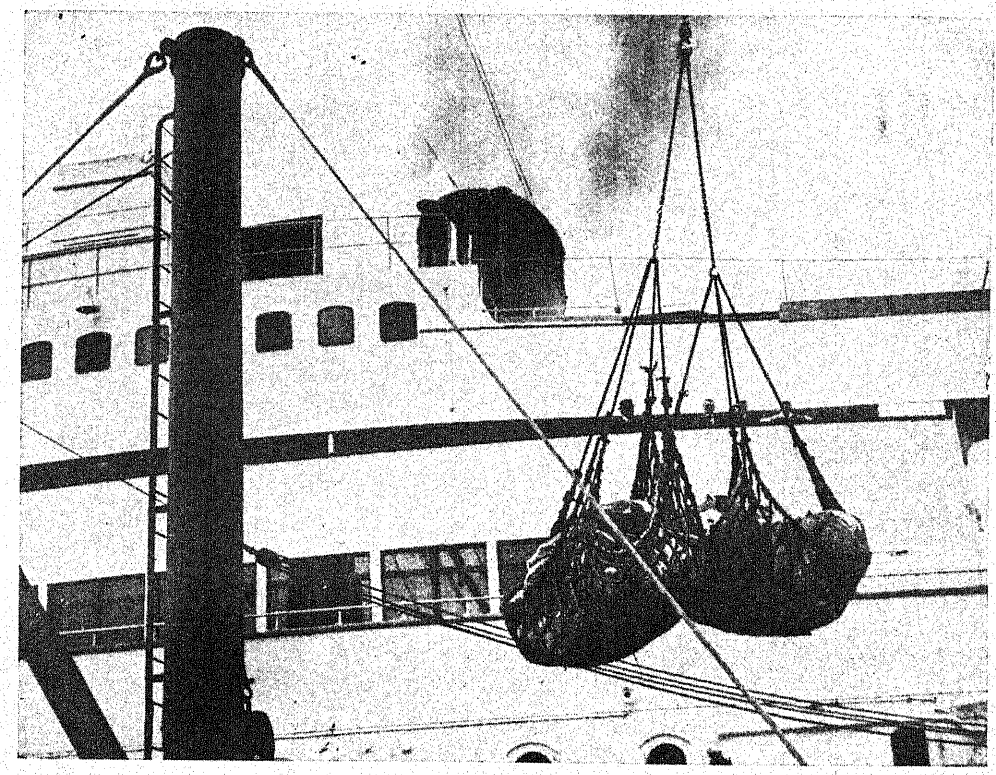
HOW THE POST CAN SPREAD PEACE AND GOODWILL AMONG MEN

The Postal Union, which was founded in 1875 to secure uniform methods in dealing with mails, and which body embraces nearly all the countries of the world, was one of the first Leagues of Nations. Perhaps we may end with the friendly note which has a noble place on the great Post Office building at Washington:

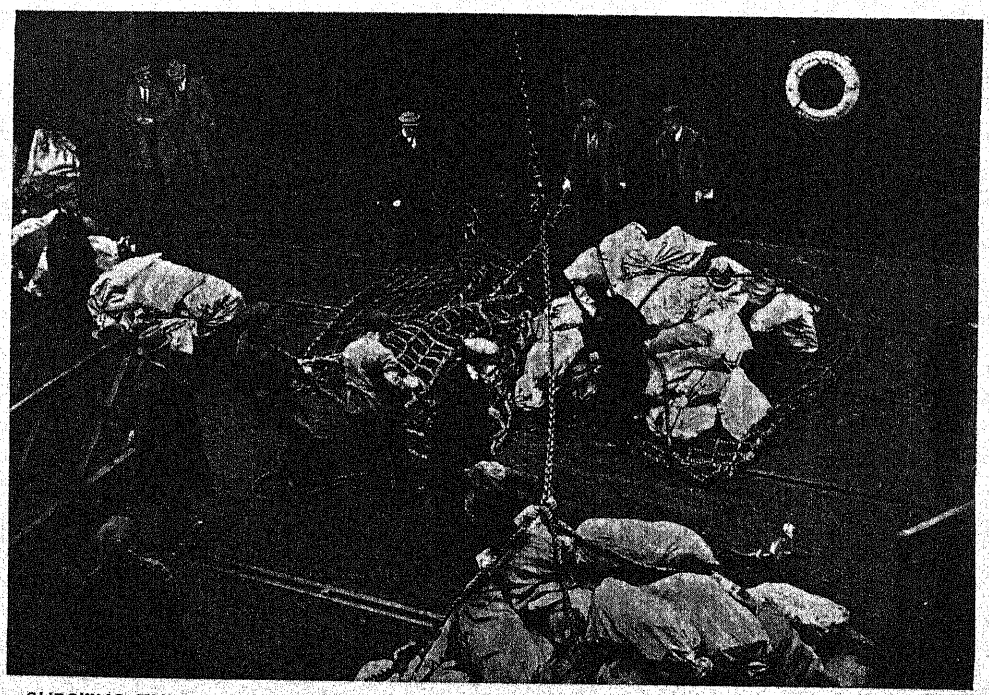
> Messenger of sympathy and love,
> Servant of parted friends,
> Consoler of the lonely,
> Bond of the scattered family,
> Carrier of news and knowledge,
> Instrument of trade and industry,
> Promoter of mutual kindness,
> Of Peace and of Goodwill
> Among Men and Nations.

Truly that is the mission and the service of the Post. It brings mankind together, embracing the world in its circle of friendliness, one great step forward in the march of man towards universal peace and goodwill.

PICTURE-STORY OF THE POST

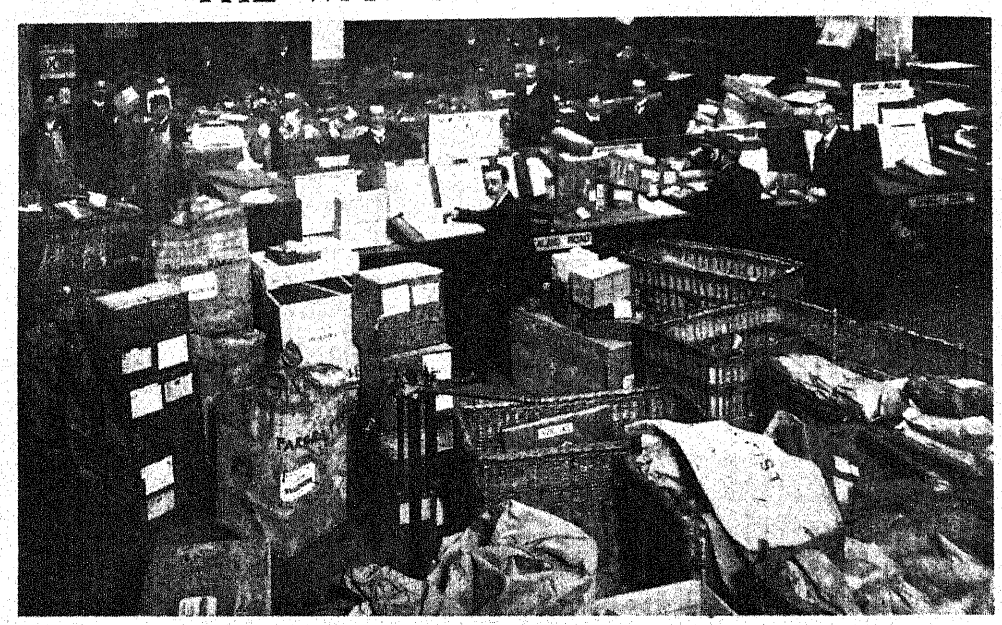


MAILS FROM NEW YORK BEING UNLOADED FROM THE BERENGARIA AT SOUTHAMPTON



CHECKING THE MAILBAGS ON THE QUAYSIDE BEFORE THEY ARE PLACED IN THE TRAIN

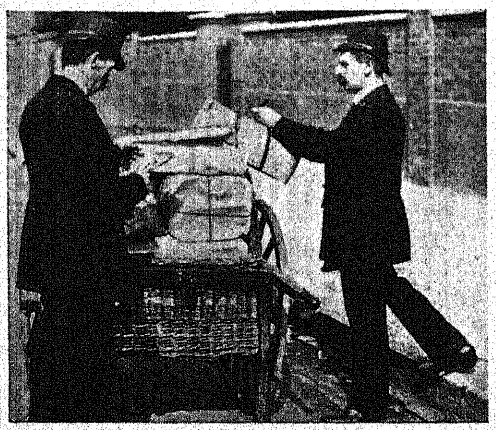
THE WAY A PARCEL GOES



THE LONDON OFFICE WHERE OVERSEA PARCELS ARE SORTED

SORTING PARCELS AT MOUNT PLEASANT DURING A CHRISTMAS RUSH

PARCELS AT A LONDON RAILWAY TERMINUS TO BE TAKEN TO DISTANT PARTS

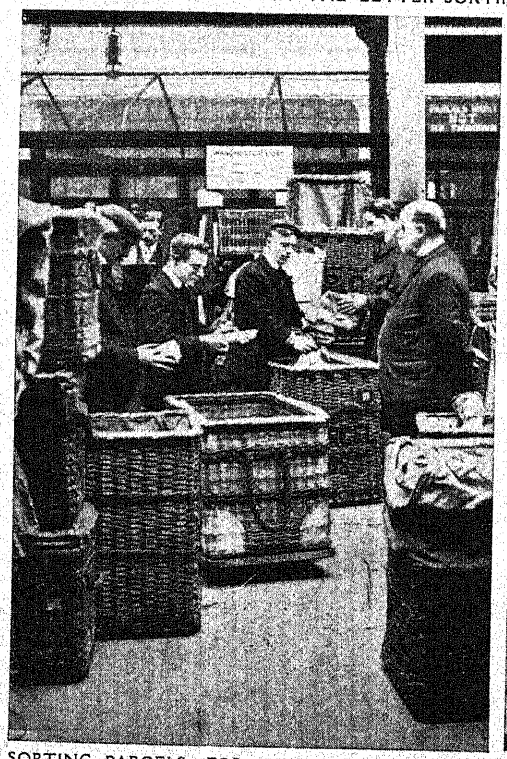


THE FAMILIAR DELIVERY CART

A PARCEL ARRIVES AT ITS DESTINATION

SORTING THE LETTERS AND PARCELS

A BUSY SCENE IN THE LETTER-SORTING DEPARTMENT AT MOUNT PLEASANT



SORTING PARCELS FOR DESPATCH ALL OVER THE COUNTRY

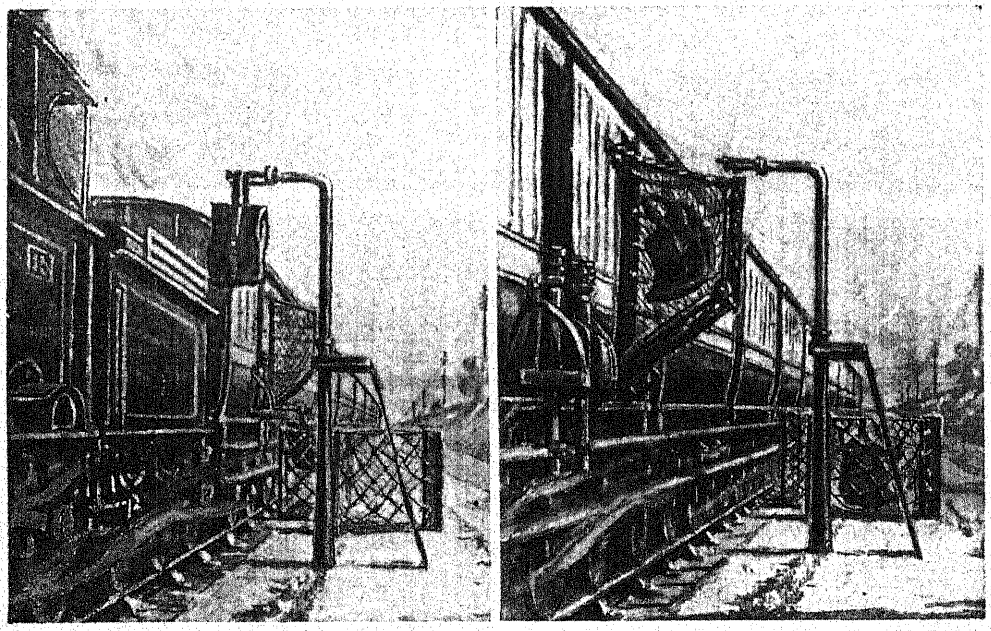
CHECKING THE MAILS AS THEY ARRIVE AT MOUNT PLEASANT

THE TRAVELLING POST OFFICE

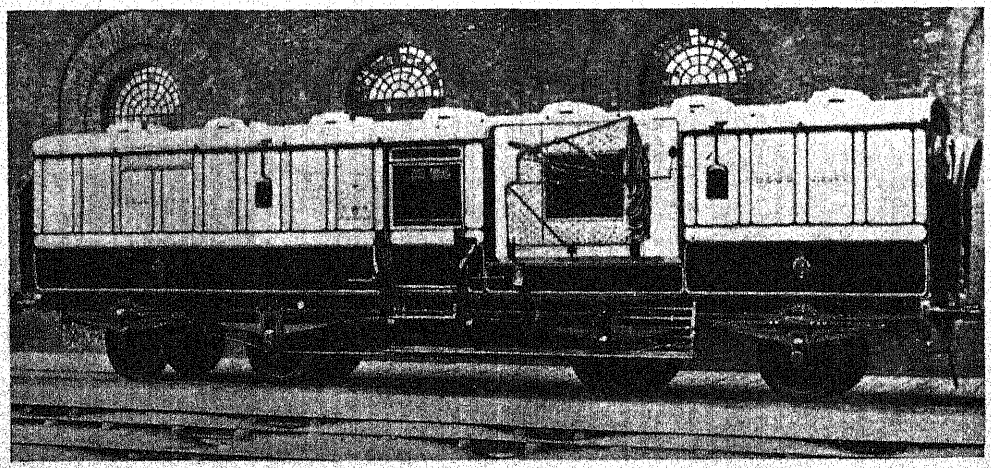
A POSTBOX ON A LONDON TO ABERDEEN TRAIN

AN ELECTRIC TRUCK WHICH CARRIES MAILS TO THE TRAIN

INSIDE A MAIL VAN ON THE L.M.S. RAILWAY

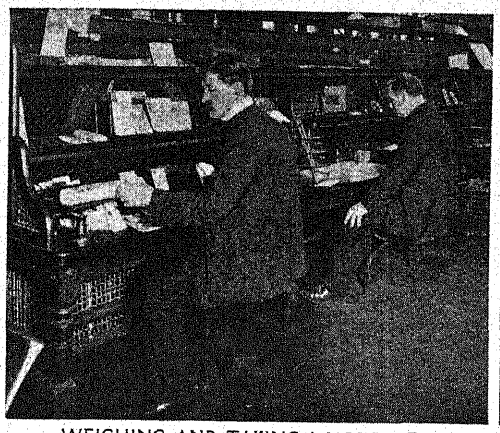


HOW THE TRAVELLING POST OFFICE PICKS UP MAILS AND DELIVERS THEM AT FULL SPEED

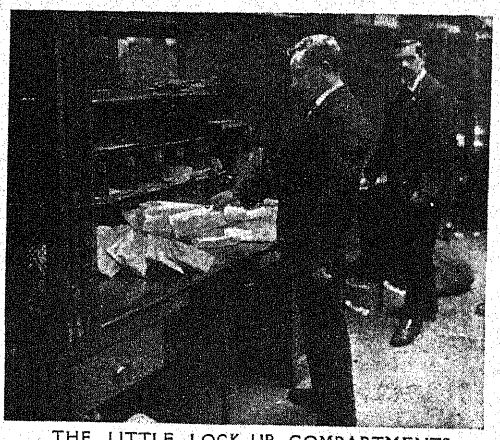


A MAIL-COACH OF THE LONDON, MIDLAND, AND SCOTTISH RAILWAY, SHOWING THE NET WHICH PICKS UP THE MAILS

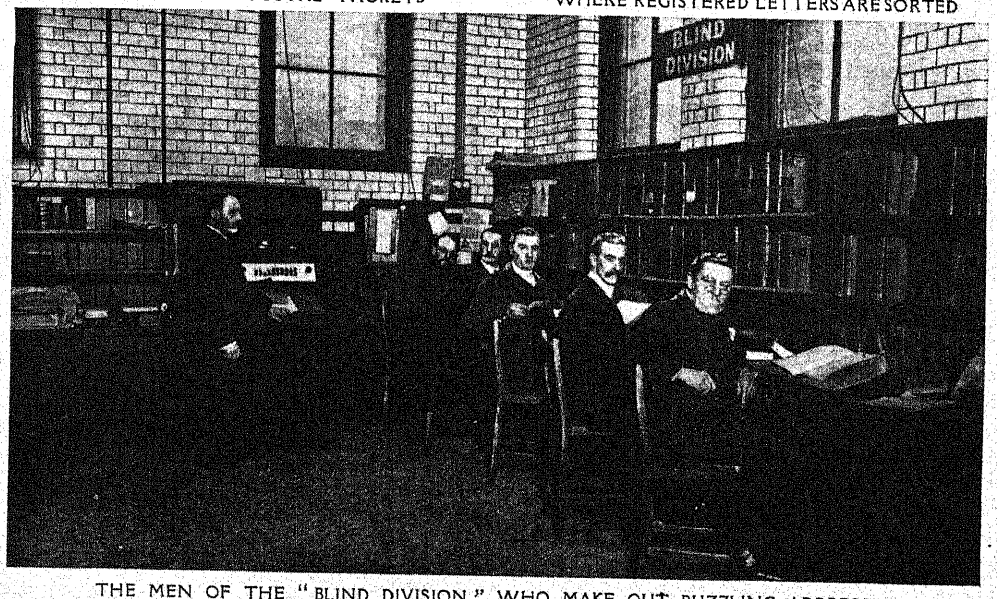
BEHIND THE SCENES IN THE POST OFFICE



WEIGHING AND TAKING A NOTE OF UNDER-STAMPED POSTAL PACKETS



THE LITTLE LOCK-UP COMPARTMENTS WHERE REGISTERED LETTERS ARE SORTED



THE MEN OF THE "BLIND DIVISION" WHO MAKE OUT PUZZLING ADDRESSES

CANCELLING 1500 STAMPS EVERY MINUTE

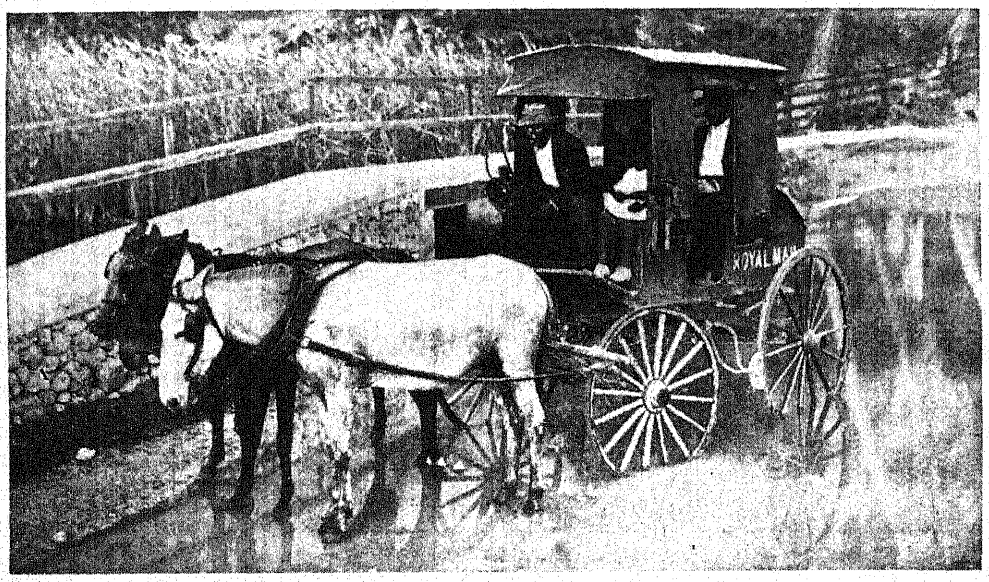
A MACHINE FOR THE CANCELLING OF STAMPS

HOW THEY CARRY THE MAILS IN OTHER LANDS

A ZULU POST CARRIER

IN NORTHERN JUTLAND

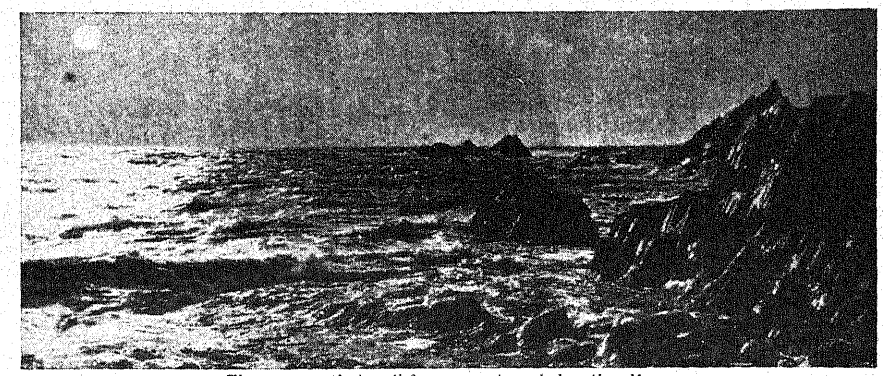
A SIAMESE POSTMAN



A TYPICAL ROYAL MAIL VAN IN JAMAICA

THE DOG TEAM OF A POSTMAN IN THE ALPS

THE PONY TEAM OF A POSTMAN IN ICELAND



The waves that roll for ever, tossed by the Moon

DOES THE MOON PULL THE SEA?

THE Moon does pull the sea, and it is the pulling of the sea by the Moon that makes the tides. In any great dock or port or harbour we see how the water rises and falls twice a day, and we know that it is the tides, as we call them, with their increasing ebb and flow, which bring all this water to us and take it away again without ever stopping. The tides never stop because the Earth never stops turning, and it is the turning of the Earth that somehow makes the tides. Plainly *tides* have something to do with *days*, for they always correspond. Long ages ago, even before men knew that the Earth turns, they saw, as they could not help seeing, that the tides have something to do with the influence of the Moon.

Let us suppose for a moment that the Moon did not go round the Earth, but simply moved through space with it. Then the Moon would appear to rise and set, as it does now, only it would rise and set at the same time every day. And so, at the same time every day, in any part of the world, there would be tides, as there are now. The only difference between this and what actually happens is that the Moon is moving round the Earth, while the Earth turns on herself. This makes the Moon seem to rise and set, in any place, about half an hour or so later every day; and the tides, we find, always correspond in their ebb and flow.

The Moon is made of matter, and so is the water of the sea. All matter everywhere pulls, and is pulled towards all other matter everywhere. We call this gravitation. The whole Earth and the whole Moon are affected by this pull; but as part of the Earth is ocean, and water is not rigid, it can be, and is, specially affected by gravitation. The water opposite the Moon at any time is pulled up towards the Moon; and as the Earth is turning all the time this means that a mighty wave of water travels over all the oceans, day and night, in response to the pull of the Moon.

If the Moon had oceans, there would be tides there too, owing to the Earth's pull; and as the Earth is very much bigger than the Moon these tides would be enormous. But the Moon has no oceans, though possibly it has ocean-beds, long since dried up. All the Moon does is simply to pull the water towards it as the Earth twists and exposes new parts of water to its powerful attraction

The Sun makes tides on the Earth as the Moon does, and for exactly the same reason; but the power of gravitation lessens quickly as the distance through which it acts increases. Thus, though the Sun is vastly bigger than the Moon, it is

so far away compared with the Moon that its influence on the ocean is comparatively small; but it can be shown.

As the Moon goes round the Earth once a month there will always be times when the Moon and the Sun are on the same side of the Earth, and times when they are on opposite sides. Now, when the Sun and Moon are pulling on the same side of the Earth they help each other; and the tides during a few days will be very high and very low as the water flows and ebbs. At another part of the month, when Moon and Sun are on opposite sides, they pull against each other. The Moon wins this tug-of-war, but it has to be content with pulling the water towards itself much less than at the other time, because the Sun's pull is now opposing and not helping the Moon.

What is There Inside the Jumping Bean?

The jumping beans come from Mexico. It is not the bean that jumps, but a little insect inside. A tree grows in the Mexican swamps near Alamos which has a curious three-cornered fruit divided into three parts, like little pods. In two of these pods are small black seeds; the third part contains a tiny worm, and is what we call the jumping bean. Before the tree can have its fruit it must, of course, bear flowers. An insect visits those flowers, and in part of each deposits an egg. The part of the flower which contains the egg grows with the rest of the flower, but, instead of becoming a pod for the seed of the tree, it turns into a home for the insect which is coming from the egg. Later the flowers lose their petals, and seed-pods form and ripen. In August the seed is ripe. The husk containing the pods of seed and the little pod with the worm inside drops to the ground and splits into three parts.

Now the insect has inherited the knowledge that if the bean lies where it falls it will be trodden upon, perhaps eaten by an enemy; so the worm coils itself up, then lets itself go like a catapult, and carries its house with it. It keeps on jumping till the bean is away from the tree on which it grew. In cold weather the insect lies still and sleeps, but as soon as the weather becomes warm it revives and starts jumping afresh. If a hole is made in the bean, the worm spins a web and fills up the hole again.

Can Fresh Water be Found in the Sea?

Large quantities of fresh water are found at certain places in the sea. This is particularly the case at the mouth of big rivers, where enormous volumes of fresh water are continually being poured out into the sea, and spread out over the surface for many miles. The outflow of fresh water from the Amazon is over a million cubic feet a second, and this is found on the surface as far as two hundred miles from shore. After a while, of course, its freshness entirely disappears, as its mixture with the salt water is complete. Ships short of fresh water have often let down their pails into the sea and drawn up supplies.

Off the mouth of the Amazon some years ago a ship saw another vessel flying signals of distress. "Water, water! we are dying of thirst," ran the message, and from the friendly vessel went back the advice: "Cast down your buckets where you are." The distressed ship could not understand, and signalled again and again for help, always with the same result. Then, at last, the captain let down his buckets and up they came, brimful of sparkling fresh water from the Amazon's mouth.

But fresh water can be obtained from the sea in a still more remarkable way. Much of the rain that falls in Australia sinks through the soil till it reaches an impervious layer of rock. It runs along the top of this, perhaps hundreds of feet below the surface of the ground, and finally makes its way into the sea as a submarine spring. Off the eastern coast of Australia fresh water from these springs, rising on account of its lesser density to the surface of the sea, is often dipped up in buckets by the crews of ships and boats.

Off some of the South Sea Islands the natives even dive down to the bottom of the sea and fetch up fresh water for drinking purposes in hollowed gourds. This is surely the most astonishing of all ways of obtaining drinking water.

Ground ice has been seen rising to the surface of the sea off the Atlantic coast of America, coming, no doubt, from a submarine spring. When the fresh water reached the cold sea water, which was below freezing point, it rapidly froze into ice, and, being lighter, rose to the surface.

Why does an Onion make our Eyes water?

Our eyes are really watering all the time; that is to say, we are producing tears that pass over the eyeball and keep it clean. That is why we blink, to carry the tears that appear under the upper lid over the surface of the eye. These tears escape into the nose. We say that our eyes water when the tears form so quickly that they cannot escape quickly enough, because then we see them water. Onions give off something to the air which excites the ends of the nerves of smell in the nose, and also excites the ends of the nerves of touch in the eyeball and eyelids, and so sends a message to the brain telling the tear-glands to make tears quickly; and then we say that our eyes water. There is use in this, for the rapid flow of tears helps to protect the eyelids and the eyeball from the stuff the onions give off. In people who, for some reason, cannot produce tears, such things as onions will make the eyes smart severely, because such people cannot protect themselves by making their eyes water.

Why are Some Plants Always Green?

Though it is the common rule that green plants lose their leaves in winter, when there is less sun for them to use, we must remember that the variety of life is infinite, and that each plant has its own way of living, which suits it. Thus, some plants, which we call evergreen, develop a strong kind of leaf which lasts all through the winter, in spite of the wind and the wet, and uses the winter sun whenever it shines. Probably we shall find—at any rate, in some of these cases—that the plant really belongs to a part of the world where there is plenty of sun in winter, so that it is quite worth the plant's while to keep its green leaves all the year round.

Who was Dido?

Dido, the legendary queen of Carthage, was said to be the daughter of the King of Tyre, a famous town of Phoenicia. When the old monarch died Pygmalion turned his sister out from the kingdom, and she wandered for years from land to land in search of a place to live. One day a storm drove her ship to Africa. The princess was enchanted, and wished to remain there; but, robbed of her fortune by her brother, how could she pay for land? Here Dido showed her wit.

"Will you grant me as much ground as the hide of a bull can cover?" she said to the natives, who could not refuse so small a request.

When it was granted, Dido cut the hide into very narrow slips, and enclosed enough land to serve for the building of a citadel. So she founded Byrsa, which was to become Carthage, the powerful and famous rival of Rome.

Although she was beautiful, kind, and beloved by all, Dido stabbed herself on a funeral pile in front of her people. According to the Latin poets Virgil and Ovid, Dido wished to die for love of Aeneas, after his sudden departure from Byrsa, on his way from fallen Troy to Italy. She was afterwards honoured as a god by her people.

Why has Every Pavement a Kerb?

The business of a kerb is to protect the pavement from damage through heavy vehicles bumping against it. The flagstones of the pavement itself are made of some such materials as sandstone or limestone, which readily stand the wear and tear of foot passengers, but would soon be badly damaged if the wheels of carts and omnibuses were allowed to rub against them. To prevent this, all pavements are edged with kerbs of the hardest granite, which will not crumble or split under the shocks of the traffic.

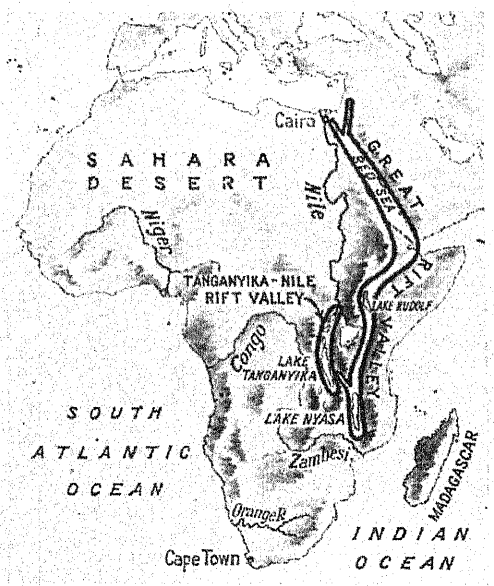
Why is there Shingle on the South Coast, and Sand on the East?

This depends on the Earth's crust in various places. The shingle we find on the south coast of England is made by the action of the sea on rocks made by fire (called *igneous* rocks, from the Latin word for a fire). Often near the layer that forms the shingle there is a layer of chalk, and that is also broken down by the sea-water. Chalk, as we know, is a deep-sea deposit of the bodies of creatures that once lived. On the east coast the history of the Earth's crust has been different. There the exposed layers have been mostly formed by deposits of material at the bottom of the sea. This forms the very crumbly sort of rock called sandstone—a good example of the opposite class of rocks to those called igneous. The sandstone class of rocks is called *sedimentary*, because they were formed as a sediment under the water. Neverthless, the same elements, silicon and oxygen, compose both sand and shingle.

What is the Great Rift Valley?

The Great Rift Valley is a gigantic crack in the Earth which begins in Palestine, in the valley of the Jordan, and runs down to the south of Lake Nyasa in East Africa, something like 2500 miles. The Dead Sea lies in one of its deepest parts, and it widens out to form the Red Sea, which is bounded by the high plateau of Arabia on one side and of Egypt and Nubia on the other. At the south end of the Red Sea the Great Rift sweeps inland and includes a chain of lakes from Lake Rudolf down to Lake Nyasa.

From the northern shore of Lake Nyasa another rift valley, generally regarded as a second branch of the Great Rift Valley,



THE GREAT RIFT VALLEY IN AFRICA

sweeps westward, and then north, embracing in its course the great lakes of Tanganyika, Albert Edward Nyanza, and Albert Nyanza.

The Great Rift Valley is the biggest crack in the world, and is formed by two parallel fractures in the Earth's crust, running side by side with a sunken part of the crust between them, so as to form a deep valley. The Rift is of comparatively recent formation in the Earth's geological history, for the steep sides of the valley are as yet little worn down by the erosion of wind or water. There has not yet been time for the wearing down.

Such rifts are rare, though several of them are found in different parts of the world. The Rhine Valley is one, and a similar rift, on a smaller scale, is to be traced in the Lowlands of Scotland. The fractures causing the Rift Valley formation are due either to strong lateral (or sideways) pressure of the layers of the Earth's crust, or to a stretching of the layers.

Why does the Smoke of a Train Go the Opposite Way to the Train?

When the smoke leaves the funnel of the engine it is really moving forward, like the engine itself, and at the same rate. If we could imagine that the train was moving onwards in *nothing*, then, as we know that moving things always move on in a straight line at the same speed for ever, unless something outside affects them, the smoke would move forward with the train, and would actually pass on in front of it as soon as the driver slowed the train. But the smoke is really poured into the ocean of air through which the train is pushing its way. The air tends to stop the train, as it tends to stop everything that moves through it, and every engineer knows how important this air-pressure is. But, though it retards the heavy train a good deal, it retards the light smoke far more. But the smoke does not really go the opposite way to the train; it is actually going the same way, but so much more slowly that it seems to go the other way, as a slow train does when seen from a fast train passing it.

Why does a Moth Fly round and round a Candle?

No one can say what it is in the brain of the moth that inspires it to like the light; and it is quite clear that this liking does the moth no good—at any rate in the case of a candle. It may possibly be that it benefits the moth to fly toward light from darkness; and perhaps we should find this to be so if we knew enough of the lives of these creatures. Different plants and different parts of the same plant behave in similar ways; and if we notice the behaviour of a baby toward a bright light we shall see that it is really like the moth. We find also that different creatures tend to move toward or away from other things beside light—such as heat, gravitation, electricity, and all sorts of chemicals and smells. Some grown-up people are like the moth—they move to the sunny side of the street; and others are like insects that usually live in darkness and fly towards it—they move to the shady side of the street.

Why Is Coriolanus Famous?

Coriolanus was a Roman warrior of great military talent, though the Romans banished him. In his great wrath he raised the hosts of the Volsci against Rome. Great was the anxiety among the Romans. Embassies carried to Coriolanus the pleadings of his countrymen, heralds were sent to solicit his return; but all in vain. At last, it was suggested that the exile's mother and his wife, Veturia and Volumnia, should go and implore him; and Love prevailed. Coriolanus yielded to their tears and sent the Volsci back. Coriolanus, however, was to become a victim of the resentment of Rome's enemies, for historians report that he died soon after, stabbed by a Volscian. The Roman matrons wore mourning in memory of Coriolanus, and a temple was built in honour of the women whose love had conquered and brought the warrior home again among his friends.

Does Sound Travel in Straight Lines?

For sound to exist at all there must be a medium in which the air-waves caused by a vibrating body can travel. If the vibrating body were in a vacuum nothing would be heard, but if the vibrating body were in perfectly still air the sound-waves would spread outward, as a soap-bubble spreads, as seen in the first picture on this page, at 1118 feet a second.

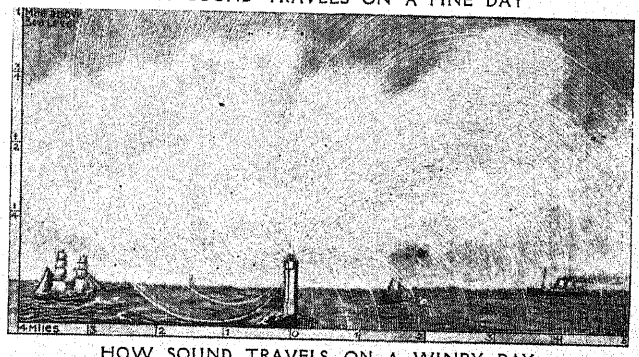
There are many things, however, which affect the speed and direction of sound. Wind, fog, and temperature all play their part.

The bubble of sound-waves is distorted by wind, as seen in the second picture on this page, and, as the direction of a sound-wave is determined by its shape, the sound will probably travel in an entirely different direction from that in which it set out. Sound travels quicker in warm air than in cold air, and so it will be seen that variation in temperature always affects sound-waves.

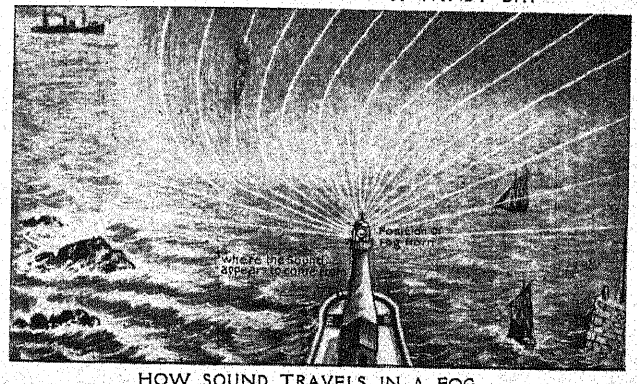
It has been noticed in fogs, particularly at sea, that sounds heard at great distances have been unheard closer to their source; and also that sounds appearing to come from a certain direction have actually come from an entirely different quarter. Fog, in fact, has more effect on sound than any other cause. This is because in a fog there are such great variations of heat and cold, the outside layer very often being quite hot and the interior quite cold.

Sound travels four and a half times quicker in water than in air, and it travels faster in steel than in any other substance, or sixteen times quicker than in air.

HOW SOUND TRAVELS ON A FINE DAY



HOW SOUND TRAVELS ON A WINDY DAY



HOW SOUND TRAVELS IN A FOG

What is Phosphorescent Light?

Phosphorescent light is not, as one might suppose from the name, the light given off by phosphorus in the dark. Indeed the light given off by phosphorus is not, strictly speaking, phosphorescent. By phosphorescent light scientific men mean light given off by certain substances after they have been exposed to sunlight or subjected to the action of X-rays or radium. Only a few substances give off light in such circumstances. Luminous paint is phosphorescent; it is usually made of zinc sulphide mixed with a trace of radium, and the flying particles of radium by hitting the zinc sulphide cause it to phosphoresce or become luminous by giving out phosphorescent light.

Does a Plumb-Line Always Hang Straight?

A vertical line at any point can generally be determined by suspending a plumb-line, or a weight attached to the end of a string, and allowing it to come to rest. The weight can only be in equilibrium when the direction of the Earth's pull passes through the point of support, and this must, of course, coincide with the string, which therefore hangs vertically.

At some places, however, it is found that the plumb-line does not hang quite vertically, and where this is so we know at once that some other attraction must be acting on the weight. Sometimes this is a mountain. Dr. Maskelyne, a former Astronomer Royal, found that when he suspended two plumb-lines near the mountain of Schiehallion in Perthshire, one on the north and the other on the south, the angle between their directions was greater than the angle between two vertical plumb-lines should be. On measuring he found that each plumb-line was deflected slightly toward the mountain. There the mountain was attracting the weights and drawing them slightly toward itself.

We can understand this, but in India a very strange thing happens. When a plumb-line is suspended in the southern or peninsular regions it hangs quite vertically, but when taken north it is deflected—not toward the Himalaya Mountains, drawn in that direction by their mighty mass, but away from the mountains, toward the southern plain.

This behaviour of the plumb-line, so different from what we should expect, is due to the fact that the weight of the great Deccan plateau, and the material lying beneath it, is greater than the weight of the Himalaya Mountains and the material below them, so that the heavy plain attracts the bob of the plumb-line away from the lighter mountains, massive though they appear to the eye. The unseen attraction, in other words, is greater than the visible attraction.

What is the Wallace Line?

The surface of the world was not always like it is now. In former times land now under water has been dry land, and mountain ranges now towering to the clouds have been deep under the sea.

At one time, not so very long ago as geological time goes, it would have been possible to walk on dry land all the way from Scotland to Iceland. At one time, too, there was a continent in the Atlantic, and coral reefs where the Dolomites and Alps now stand.

Naturally, the distribution of land plants and animals has depended very much on the distribution of land and sea, and differences in the plant and animal life of various countries have been explained by long absence of land connection, for land animals cannot usually swim far, and seeds are not often carried across wide expanses of water.

The animals of Australia, for instance, and of New Guinea and all the eastern Malayan and Pacific islands are quite unlike those in adjacent islands and in the rest of the world. There are almost no mammals, and there is abundance of marsupials. This difference, as Alfred Russel Wallace first pointed out, is due to a channel of deep sea water which cuts off Australia and the islands mentioned from the rest of the world, and this deep channel is called the Wallace Line. We see it marked on the map of Australasia on page 2456.

Why is Seaweed Put on the Land?

Seaweed is a sea plant, and resembles in its chemical composition the chemical composition of land plants. When it decays and decomposes it breaks up into substances which serve as food for land plants. It is specially rich in potassium salts; at one time, indeed, a great deal of seaweed was burned in order to obtain those salts from it; and salts of potassium are a very valuable food for some plants, such as potatoes. In some countries seaweed fertiliser is much used, but in England it is rarely seen.

A nymph of the Seine, by Jean Goujon

THE SCULPTORS OF FRANCE

If we look back at Chapter 14 we see how art travelled along the high-roads of Europe, hidden in the hearts and minds of painters like the magic pearl of silence inside the beggarman's staff.

Art in Flanders and art in Italy set out to visit each other's homes, and from way-side halts and happenings sprang much that was of considerable importance in the history of Europe.

We know that in Italy sculpture and painting grew side by side, arose from the same need and impulse—the enriching of churches and public buildings. Flanders rivalled and sometimes outshone Italy in the realm of painting, but she was left far behind in sculpture. No master in the least comparable with the Van Eycks arose to enrich his land with statuary. There seemed to be in Italy, for some hundred years, an overpowering desire to see glorious, solid form as well as glorious colour. It might be said that the main strength of European sculpture was concentrated in those generations; and since that time the world has merely shared what vigour remained.

Here we are speaking of "free" sculpture, of portraiture. Of the lovely carvings that adorn the medieval cathedrals of Europe, and are inseparable from architectural form, we shall be thinking later. By slow degrees the art of the sculptor evolved in France and Flanders from architectural decoration, reliefs, figures on tombs, to portrait sculpture pure and simple. Holland and Spain, each the home of a brilliant school of painting, produced no sculpture worth mention, unless Claus Sluter be claimed by the Dutch; more generally he is spoken of as Flemish. In Germany the fifteenth and sixteenth centuries saw some fine woodcarving.

It is probable that the artist-workmen of that country loved woodcarving and its possibilities more than any other European people before or since. There is something in wood itself, as a medium, that dictates to the man carving it, especially if he be of the slow, impassive nature of the Teuton. The Italians, working on marble—which seems more impersonal than wood—and moved by a swifter intelligence, were never held in thrall by their own handiwork as the Germans were.

There is some lovely woodcarving in the Cluny Museum, Paris, which shows what was the temper of the German artists, and a fine selection in the Nuremberg Museum. The best known of the very many wood-carvers were J. Syrlin of Ulm, the pretty old town of painted houses, and Veit Stoss, who worked at Nuremberg. In the church of St. Laurence, Nuremberg, is some beautiful carving by Stoss, and among other pieces a lovely St. Barbara

by Riemenschneider, a sculptor of Wurzburg. Adam Krafft is generally acknowledged as the most powerful stone-carver in Germany at this time; he died at the beginning of the sixteenth century. His work was heavy and convincing, and had much effect on the artists of his day.

THE BEAUTIFUL STATUES IN BRONZE THAT PETER VISCHER MADE

There was also a good deal of bronze statuary produced in Germany about the time the stone and wood-carvers were working. Peter Vischer was probably the best among the bronze sculptors. His famous statue of King Arthur in a church at Innsbruck, and the tomb of St. Sebald in the church of that name in Nuremberg, are very fair examples of his work.

Looking on Europe as a whole, the most interesting sculpture, next to that of Italy, was produced in France and Flanders. The end of the fourteenth century saw Claus Sluter working in the neighbourhood of Dijon. Sluter was a very gifted artist. A good quantity of his work in the monastery of Champmol has been preserved.

One of the most wonderful things in Europe is the carving Sluter did for the monastery well. The sculpture has suffered during the passing of the centuries, but the fine spirit that animated it still lives in the group of figures of the prophets. Sluter and the sculptors who followed him carved fine tombs of the Dukes of Burgundy for the monastery church. A great wealth of beauty and expression was spent on tombs of the kings and nobles of France. In many cases the sculptors, French and Flemish, are unknown. The famous tomb of Philippe Pot is preserved in the Louvre; those of Philippe le Hardi and Jean sans Peur are in the Dijon Museum. The art of the "imagier," a class of sculptors peculiar to the art of the period, is very well explained in the work of Claus Sluter and the sculptors of these tombs.

FRENCH SCULPTURE IN THE STYLE OF THE ITALIAN RENAISSANCE

To sixteenth-century France belong a group of sculptors in whose work was the echo of the Italian Renaissance. The chief were Jean Goujon, Barthelémy Prieur, Germain Pilon, and Michel Colombe.

Of these Goujon is perhaps the most to be remembered. He was a great figure in his day, and has a place in the development of French art, although in comparison with the great Florentines he can but be called a minor artist. Some of his work is in the lovely little Cluny Museum in Paris, some in the Louvre; the most famous is the finely-sculptured Fountain of the Innocents in Paris.

Michel Colombe will always be remembered because of the tomb of Francis of Brittany which he carved for Nantes Cathedral. It is a very remarkable work of design, and embodies a series of small upright figures. At the corner of the tomb are four large allegorical statues of Prudence, Strength, Temperance, Justice. In the Louvre is Colombe's group of St. George and the Dragon.

A good deal of work has been attributed to Michel and his fellow-workers and pupils which very possibly was done by other artists. Hundreds of minor sculptors were at work at this time, and many names have been lost. It was a period of free decoration in sculpture wherever possible, in churches, public buildings, and private houses. Each generation saw more wonderfully carved tombs for nobles, and everyday people who had not much money found money enough to pay a sculptor for a little image of a saint.

SCULPTURE GROUPS OF SCENES IN THE LIFE OF JESUS

There was a tendency to make groups showing the last hours of Jesus. In almost every church one could be seen. The most famous is in Solesmes Abbey, by Ligier-Richier, a sculptor of Touraine. This artist, who made so many sad figures in carving the story of the entombment of Jesus, could also draw children delightfully. There is in the Louvre a little figure of his showing a happy-faced child curling its toes on the ground.

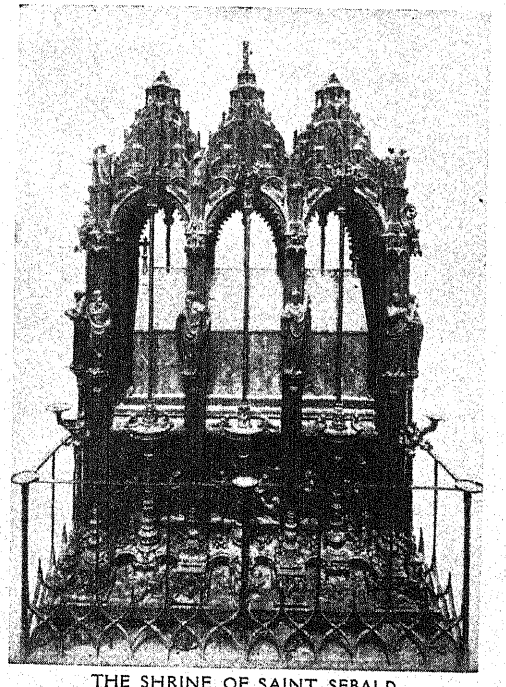
About the beginning of the seventeenth century, in the reign of Henry of Navarre, portrait sculpture became a definite branch of art in France. Before the days of Henry there had been busts of various monarchs, but the example set by him took hold of the French court, and royal portraits in marble, in faint imitation of the busts of Roman emperors, were made by all sculptors. Some were very good, some merely flattering. The equestrian portrait of Henry on the Pont Neuf in Paris is loved for Henry's sake more than for any merit of the sculptor. Simon Guillain, who also carved wonderful tombs, made an excellent full-length portrait statue of Louis the Thirteenth. François Girardon was a sculptor of Louis the Fourteenth.

The sculpture during the long reign of this monarch was, like the painting, held in subjection to the king's idea. We have read of this already. Pictures and statuary alike grew more Italian in character, and the best work in both was done in portraiture. A great deal of the decorative sculpture of the reign was uninspired, and now seems wearisome.

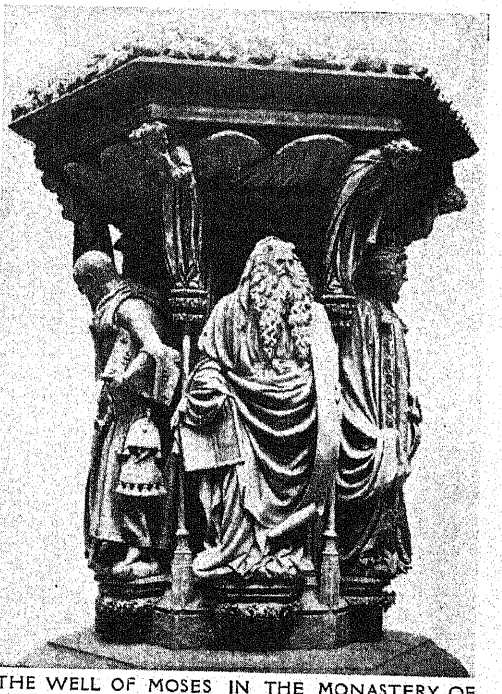
The best sculptor of the period contrived to keep himself aloof from Versailles, where all the art of France was concentrated in making the king's palace and park glorious. This was Pierre Puget, who lived from 1622-1694. Colbert, the great minister of the time, kept the artist down in Toulon for a considerable period carving lovely figures on the prows of the royal vessels. One wonderful group of statuary, called the Milo of Crotona, Puget carved for the park of Versailles. It was a powerful, throbbing figure, seeming strange among the smooth serenities of Versailles, and made the smiling gods and goddesses which adorned the royal gardens appear still less worthy.

Puget was a worshipper of Michael Angelo and of Bernini, the great man's pale shadow. His work was rugged and powerful, and reflected the life of a man who lived alone, entirely devoted to a lofty ideal of art. The figures in his groups are never still; they are struggling with some weight, bearing some burden, borne onward or backward by some mighty power. The Louvre has a fine relief of Diogenes and Alexander by Puget, and also a figure called the Gallic Hercules. The doorway of Toulon Town Hall was decorated by Puget; huge sculptured figures on either side bear on their shoulders the weight of the balcony.

Most of the important sculptors of France were drawn into the king's service. Girardon, Antoine Coysevox, and his pupils, Nicolas and Guillaume Coustou and Robert le Lorrain were chief among them. But they were not always busy chiselling nymphs for grottoes in Versailles. They found means of achieving a wider distinction. Guillaume Coustou hewed the famous Horses of Marly in the Place de la Concorde, Paris, and among other fine groups, The Rhone in Lyons Town Hall, and Maria Leczinska in the Louvre. Nicolas Coustou carved the beautiful Dauphin's tomb in Sens Cathedral. In the church of the Sorbonne, Paris, is the wonderful tomb of Richelieu by Girardon; in the Louvre is Mazarin's



THE SHRINE OF SAINT SEBALD
BY PETER VISCHER



THE WELL OF MOSES IN THE MONASTERY OF CHAMPMOL, BY CLAUS SLUTER

tomb by Coysevox, who also made some of the best portrait busts of the period; that of the great Condé—the general of the seventeenth century—is a very fine piece of work indeed.

The eighteenth century brought a development and a change. The Italian art favoured by Louis the Fourteenth died very soon after his death. We know from our reading of earlier chapters how France drew a long breath when the tyrant of art and letters died. A new painting and a new sculpture sprang suddenly up like flowers which had been hiding and waiting for the first spring sunshine. A little of the classic spirit survived; for a time large monuments, pretentious imitations of Italian groups, were made. The spirit of Coysevox and the Coustous lived on in the sculpture of a few men like Jean Baptiste Lemoyne, and Etienne Maurice Falconet. Edmé Bouchardon, another sculptor, was the very opposite of these in his smooth, too-simple method of working.

BENJAMIN FRANKLIN, BY JEAN ANTOINE HOUDON

A little later two really great sculptors arose—Jean Baptiste Pigalle and Jean Antoine Houdon. Set amid the lofty achievements of these artists came the dainty work of a number of men we might call drawing-room sculptors; the most important was Claude Michel Clodion.

There was a delightful grace in the best of this domestic sculpture; many of Clodion's groups remind us a little of Fragonard and Watteau. Augustin Pajou was another sculptor who made sensitive, nervous portrait studies in marble. Clodion and Pajou often worked in terracotta for the sake of the pliability of the medium. Jean Jacques Caffieri made a number of portrait busts that have a pleasing distinction. These are mainly of eighteenth-century writers.

Lemoyne, the first of this new group, was the master of Falconet, a young artist of gifts who had a tendency to spoil his work, as a writer has said, by insisting on being sublime. He was given a commission to make a colossal equestrian portrait of Peter the Great, and he went to Petrograd determined to produce the most wonderful king on horseback ever seen. Perhaps because his natural bent was for carving graceful nymphs—like those that decorate the Clock of the Three Graces in the Camondo Collection—he made the king on horseback a little too wonderful. The fiery charger is rearing just on the edge of a precipice, and Peter the Great looks like a Roman general born out of due time. But it was a spirited piece of work, and is interesting as one of the last of its kind produced by French sculptors.

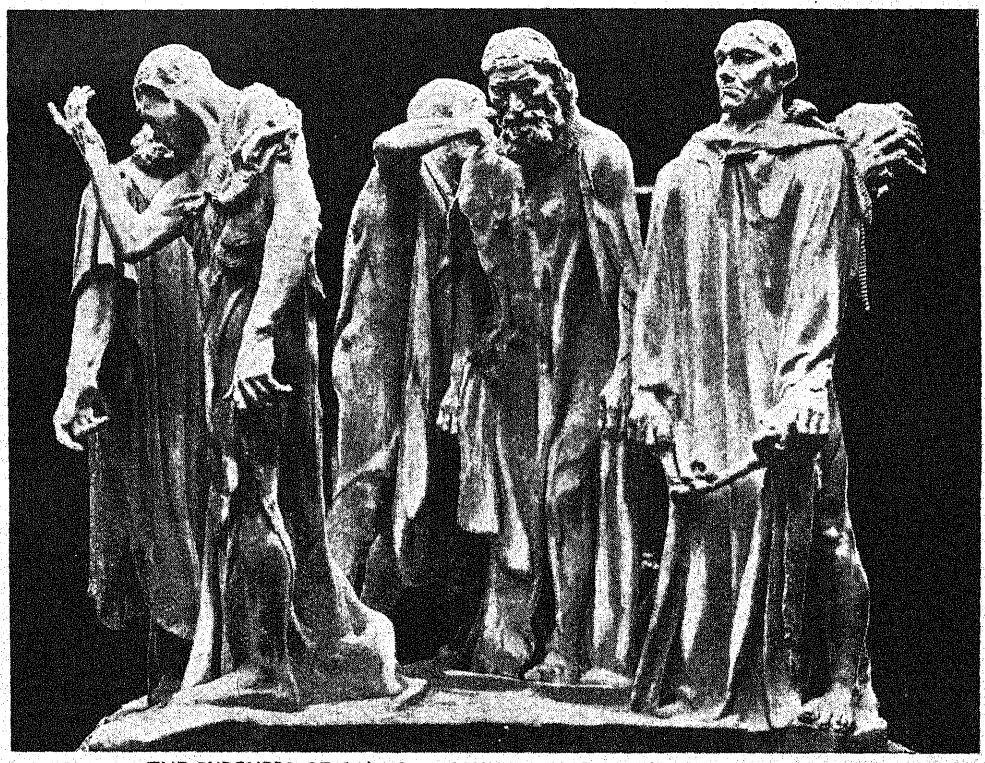
The sculpture of Pigalle marks another stage, not only in art but in the thought of the people. He was a nervous, sensitive artist, capable of delicate workmanship like the seated Mercury, and also of excellent portraits. Probably his best known work is the wonderful tomb of Marshal Saxe in Strasbourg Cathedral. The Rheims statue of Louis the Fifteenth shows a good deal of his power, independence, and his individual thought.

He had the courage to throw aside convention when he made this statue group of the French king, for he set at the foot of the pedestal a real French workman and a real French citizen, instead of classical figures representing labour, or trade.

Close on the heels of Pigalle came Houdon, who threw aside allegorical and classical convention altogether, and tried to make his statues full of life and intelligence. He was a realist, one who tried to follow Nature, though compared with realism today Houdon has the grace and dignity of an age-old art. Houdon's chief work was portraiture, but single figures like the Dianas in the Louvre, and The Winter in Montpellier Museum, show how varied was the genius of this man. His busts of Louise Brogniard, and the lovely, smiling head of his wife (both in the Louvre) reveal the softest of womanly graces; one could almost touch the marble cheek and expect to find it respond

to the finger tip, warm and living flesh. Houdon's Voltaire, in the Théâtre Français, is a portrait of another kind; history and life, thought and cynicism, are the forces that lie behind this magnificent statue. The portraits of Diderot, Rousseau, and Mirabeau are superb. They are so intensely real that we feel they could have belonged to no people and no period but the French on the eve of the Revolution.

The Revolution caught Houdon up in middle life, so that his work belongs to the two epochs of thought. His bust of Napoleon, in the Dijon Museum, shows how the sculptor had pursued his art untroubled by the upheaval of a great nation. He died in 1828.



THE BURGHERS OF CALAIS—A SCULPTURE GROUP BY AUGUSTE RODIN

After the Revolution, the feeling about sculpture in France slowly changed. For a time there was little difference, save that the new grandeur of Napoleon replaced the old grandeur of Louis the Fourteenth. Many artists were employed on work for him which suffered from being too grand. Also, they could not get away from the spell of classic art. When Antoine Chaudet carved his portrait of Napoleon he put a toga on him, as if he had been a Caesar; Canova, the Italian sculptor, did worse; his statue of Napoleon is as undraped as if he were a Greek god. And the satellites of Napoleon, his generals on whom renown was so freely shed, were sculptured as if in the flowing garments of ancient Rome. So slow was French sculpture in throwing off the leading strings of her mother Greece and her nurse Italy.

But as a generation or two passed by, France as a republic claimed the glory which had belonged to France as a monarchy. The mass of the people now became of immense importance.

If we think for a moment we shall remember that so far the great part of French sculpture had been concerned with religion, mythology, and portraits of kings and those whom kings delighted to honour. Emperors now faded into a soft and forgiving background, and the laurels were given to statesmen, historians, scientists, and inventors. The best sculpture was given in portraiture of people of this description, and in the decoration of public buildings.

Three or four names dominate nineteenth-century sculpture in France: Barye, Rude, Carpeaux, Rodin. Behind

these came a great company of lesser men who did much that was praiseworthy without being epoch-making. Men like David d'Angers, Jehan du Seigneur, Chaudet, Dubois, Mercié, Pradier, Falguière, Frémiet, Dalou, Bartholomé, Injalbert, and Cordonnier—the last of these belonging to our own day, as well as to yesterday.

Bartholomé carved, among other things, the grand monument to the dead in Père-Lachaise, Paris. Four fine bronzes by Paul Dubois, another comparatively new sculptor, decorate General Lamoricière's tomb in Nantes Cathedral. Dalou made a superb group called The Triumph of the Republic, in the Place De La Nation, Paris (reproduced on page 4209), and the monument to Delacroix in the Luxembourg Gardens. Most of these later sculptors of France are represented in the Luxembourg Galleries. There we can see fine groups like Mercié's Remembrance, and Cold, by Roger Bloche.

D'Angers, a little earlier, made portrait studies in great numbers and also carved the pediment of the Pantheon.

Rude, his work similarly divided, has earned an immortality by his superb group called the Marseillaise, on the Arc de Triomphe. Two other very fine works of his are Napoleon Awaking to Immortality (in the Louvre), and the tomb of General Cavaignac, in Montmartre Cemetery, Paris.

THE HAPPY FIGURES THAT DANCE ABOVE THE STREETS OF PARIS

All the work of Rude was marked by that quivering lifelikeness which is the mark of great sculpture. He alone would have glorified a century. Carpeaux carried on in his work something of Rude's spirit. His famous Dancing Group—a decoration of the Opera House in Paris—is a mass of alert and dainty figures who smile and sing as they dance up there, set in marble for ever. Carpeaux and Frémiet collaborated in a remarkable work—the Fountain of the Four Quarters of the World, in the Observatory Gardens, Paris.

Among these carvers of the beauty of the human form stands out another, the only great sculptor of animals France has produced—Barye Barye's work came as a revelation to French artists. Never before had such crouching, springing, powerful forms invaded her statuary. Barye has been called the Michael Angelo of wild beasts. And there is something in the way his animal forms surge and live, instinct with savage emotion, which reminds us of the superb wildness of Michael Angelo's Slaves and his fresco figures. Three of his most famous bronzes are in the Louvre: the Centaur, the Tiger and Crocodile, and the Elephant. Frémiet's work in animals is also very wonderful. There is extraordinary force in his group Orang-outang and Savage, in Borneo.

THE POOR BOY WHO WON FAME AND BROUGHT GLORY TO FRANCE

The last word in French sculpture has been said by Auguste Rodin, the poor boy of Paris, who became the glory of France. He was a poet, a thinker, a dreamer in stone, and also a strange realist. He has had a tremendous effect on the artists of his generation. His work was a fitting close to the nineteenth century, and stretches out to the twentieth in full kinship with those whose work belongs more properly to tomorrow. Those who look thoughtfully at Rodin's work can see in it a handbook on the advance of sculpture. Rodin translated woods, colour, temper into stone; his predecessors had been content with form and the illusion of actual life. Like most revolutionaries, Rodin was not accepted at first, and his work was severely criticised. His feeling for what was called unfinished work brought him to great disfavour in some communities who were unable to see that the unfinished figure sleeping in stone had a quality that no smooth, carefully-finished limbs could have. But when he died in 1917 he was the accepted genius of Europe.

Rodin's work is now all over the Continent, and his smallest piece is noteworthy. If we look at groups like The Kiss, or the Bust of a Woman in the Luxembourg, or the fine monument to the Six Citizens of Calais (in the gardens behind the Houses of Parliament at Westminster), we can understand perhaps something of the varied nature of this man's work.

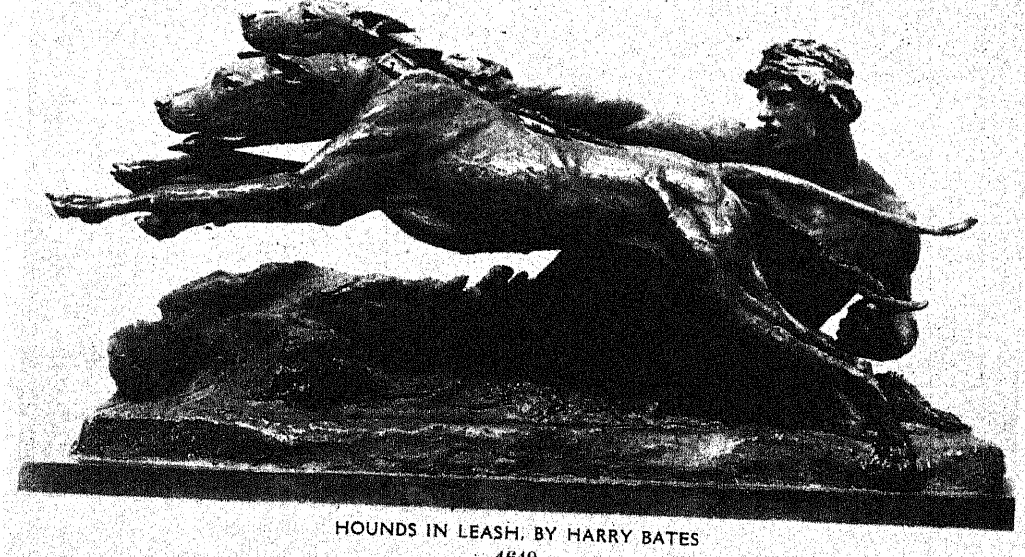
THE SPLENDID WORKS WHICH RODIN GAVE TO THE COUNTRY HE LOVED

We should have a special thankfulness to him here, for during the war he gave a great collection of his works (twenty in all) to our Little Treasure Island, where they stand today in South Kensington.

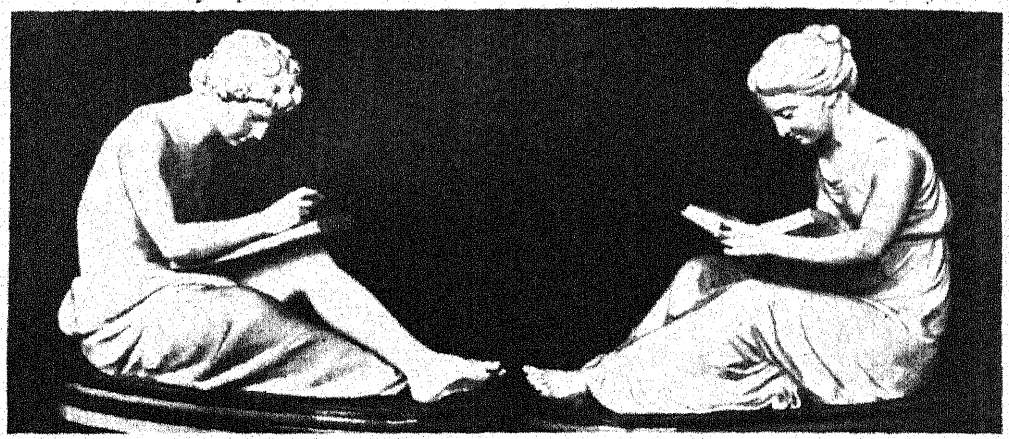
The new sculptors will have much to do to equal Rodin's fame. It is a just fame, for Rodin's art is that greatest art which calls to the imagination and sensitiveness of the onlooker.

THE WORK OF MODERN SCULPTORS

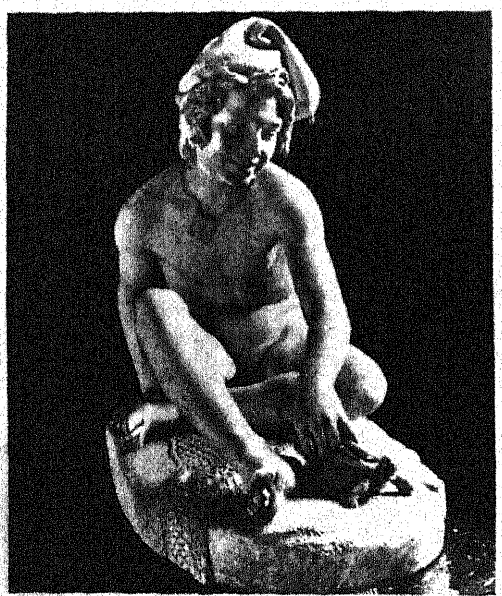
THE DANCER AND THE GAZELLES, BY PAUL MANSHIP



HOUNDS IN LEASH, BY HARRY BATES



READING AND WRITING. BY ÉTIENNE MAURICE FALCONET



THE FISHER-BOY OF NAPLES. BY FRANCOIS RUDE

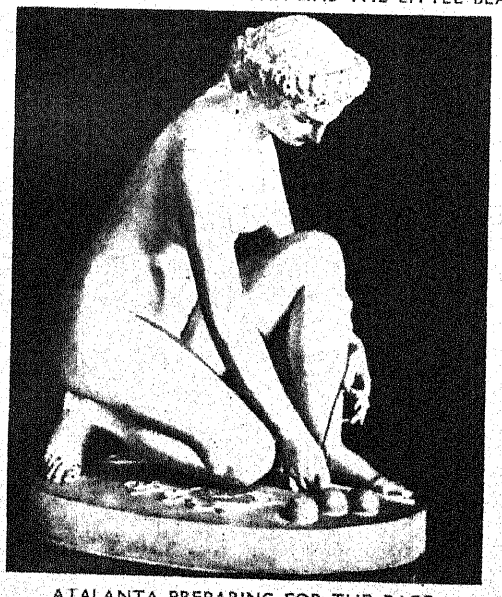
THE CHILD WITH THE CAGE. BY JEAN BAPTISTE PIGALLE

REMEMBRANCE. BY ANTONIN MERCIÉ

THOUGHT. BY AUGUSTE RODIN

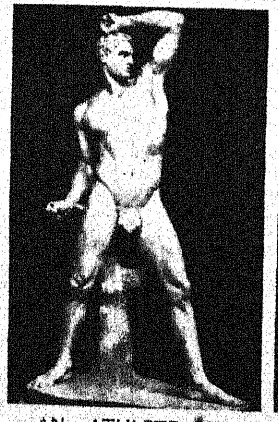
CUPID AND PSYCHE. BY ANTONIO CANOVA

PAN AND THE LITTLE BEARS. BY EMMANUEL FRÉMIET



ATALANTA PREPARING FOR THE RACE
BY JAMES PRADIER

CUPID AND THE BUTTERFLY
BY ANTOINE CHAUDET



AN ATHLETE. BY
ANTONIO CANOVA

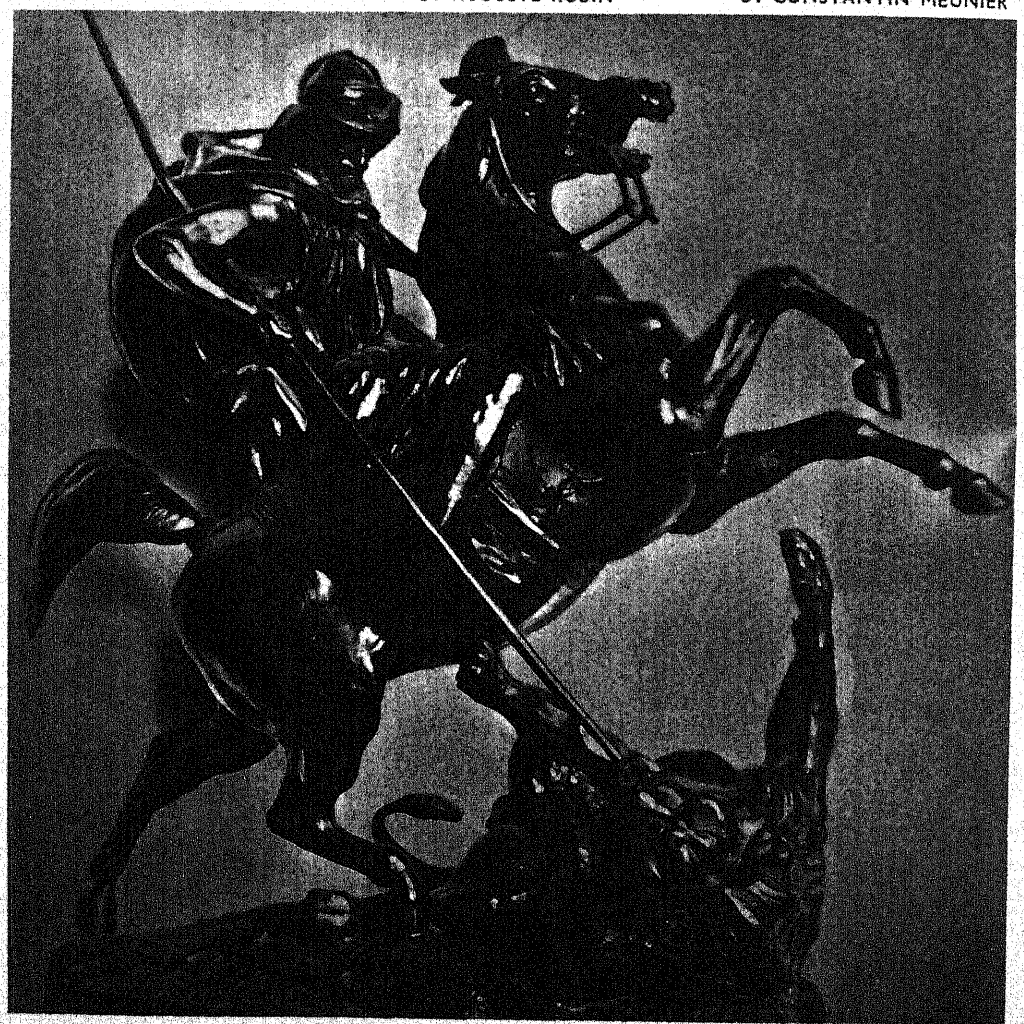
MOLIÈRE. BY JEAN ANTOINE
HOUDON

THE BOY ST. JOHN
BY JULES LAFRANCE

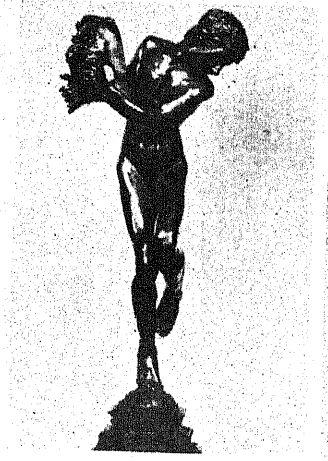
A FLORENTINE SINGER
BY PAUL DUBOIS

ST. JOHN THE BAPTIST
BY AUGUSTE RODIN

THE HAMMER MAN
BY CONSTANTIN MEUNIER



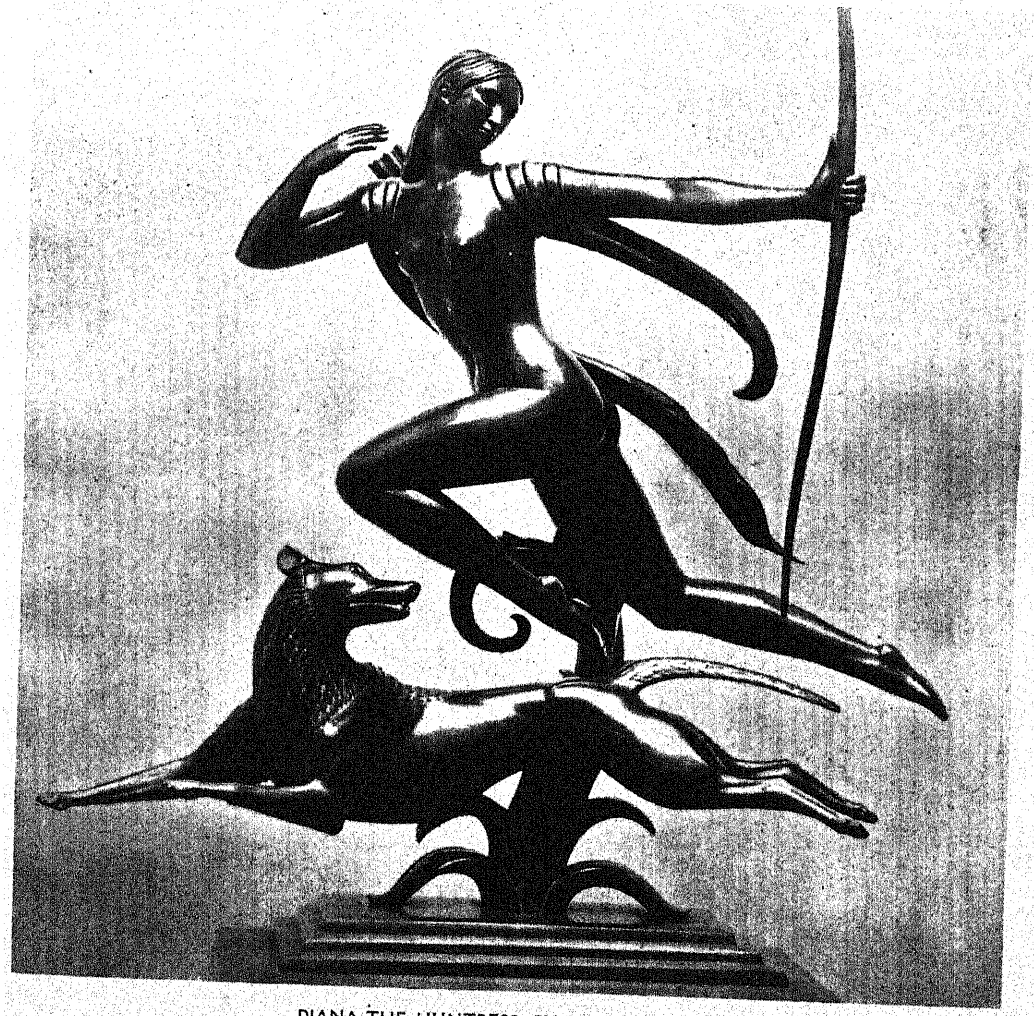
AN ARAB HORSEMAN KILLING A LION. BY ANTOINE LOUIS BARYE



COMEDY AND TRAGEDY
BY ALFRED GILBERT

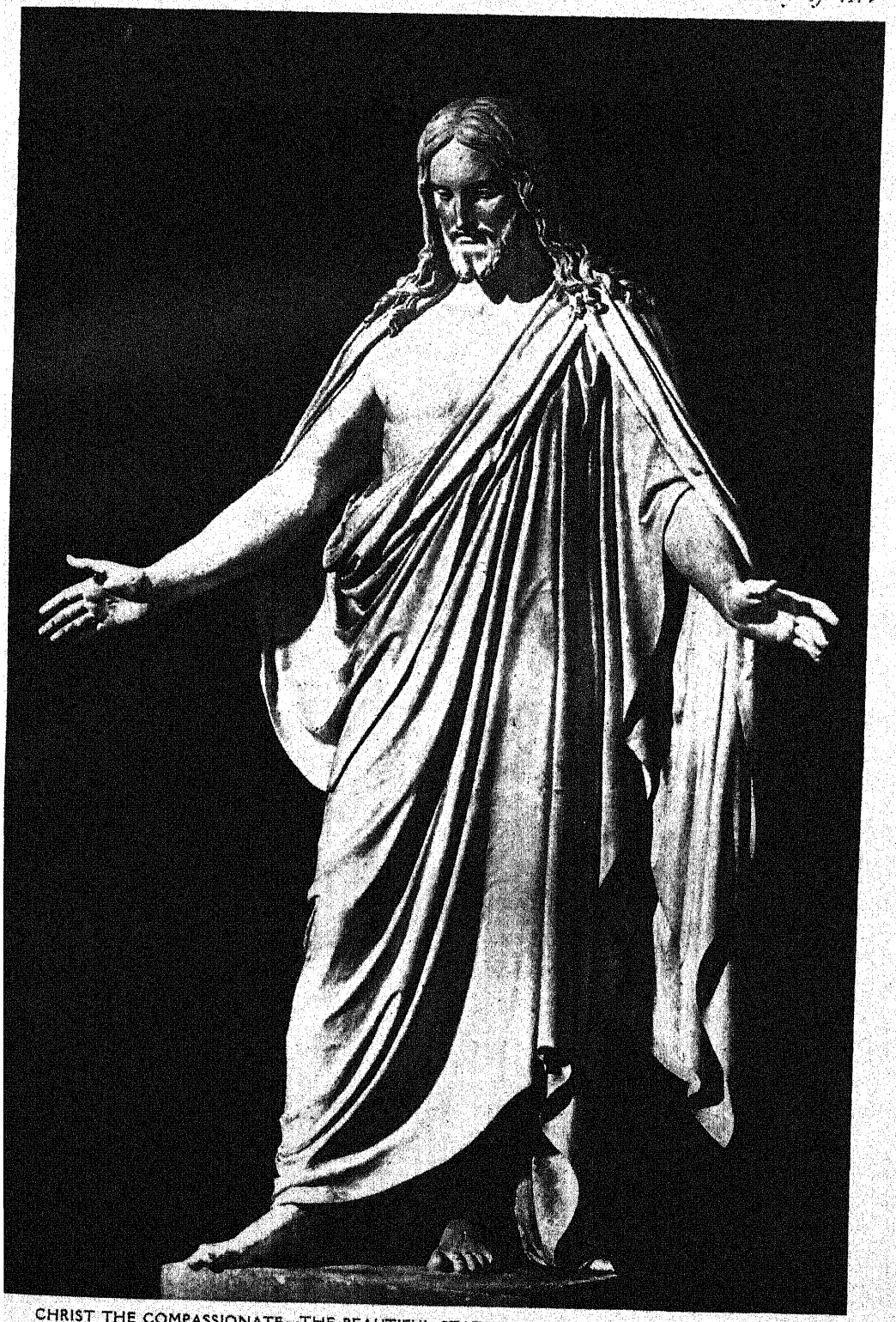
THE ATHLETE AND THE PYTHON
BY LORD LEIGHTON

AN EGYPTIAN SINGER
BY ONSLOW FORD



DIANA THE HUNTRESS, BY PAUL MANSHIP

THE BLIND BEGGAR—FROM THE SCULPTURE BY J. CORDONNIER IN THE LUXEMBOURG



CHRIST THE COMPASSIONATE—THE BEAUTIFUL STATUE BY BERTEL THORWALDSEN IN ROME

CUPID, BY ALFRED GILBERT

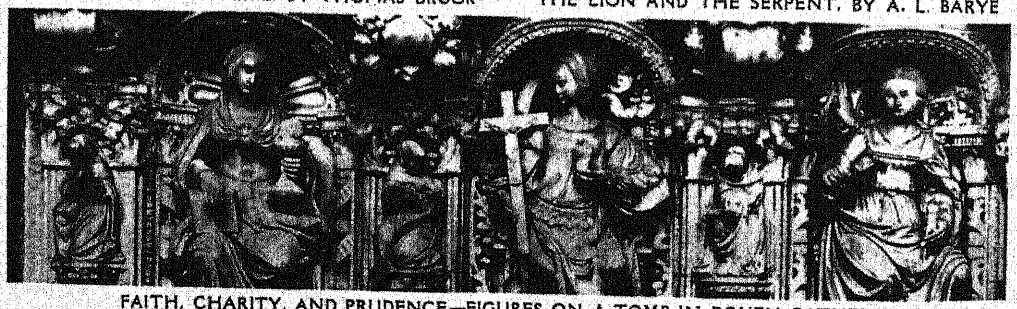
THE AGE OF INNOCENCE, BY ALFRED DRURY

THE MOQUI PRAYER FOR RAIN BY HERMON A. MACNEIL

HOMER SINGS HIS LAY, BY HARRY BATES

A MOMENT OF PERIL, BY THOMAS BROCK

THE LION AND THE SERPENT, BY A. L. BARYE



FAITH, CHARITY, AND PRUDENCE—FIGURES ON A TOMB IN ROUEN CATHEDRAL

Some of the sculptors represented in these pages are mentioned in the next chapter. These pictures are reproduced by courtesy of Preston Art Gallery, Messrs. Alinari, Anderson, Annan, Giraudon, Hanfstaengl, and others

Somerset House, London, the headquarters of the Inland Revenue

WHY WE PAY RATES AND TAXES

A NATION is like a club. Because we belong to a big club called Britain we enjoy many advantages. When we join a cricket club, we agree to obey the rules and to pay a subscription, and we are glad to do so because we hope to get value for our money. By joining together and sharing the expenses we have advantages we could not hope to enjoy by acting singly.

It is much the same with our big British club, the members of which number many millions. Because we belong to a great nation we are protected by the laws of Parliament, made for our benefit and carried out by officials specially trained to do the work. We have an Army and Navy to protect us in war, judges to decide law disputes, inspectors to see that the laws are obeyed, a national money system to enable us to exchange goods, prisons in which to put wrongdoers, good roads for our vehicles, and special Ministers of State appointed to care for Finance, Trade, Agriculture, Health, Post Office, Public Works, and Defence.

In modern times, too, owing to the growth of Social Reform, Parliament has cared more and more for the training of children and for the protection of the aged. So we have established national departments to care for education and for the paying of pensions to the aged poor. The war made it necessary to set up a big department to care for disabled fighting men, and for the widows and orphans of those who were killed, and this Pensions department has for some years been actually looking after some three million men, women, and children, or one in every sixteen of the population.

The number of people employed in all the departments of Government is about 125,000, apart from the Post Office. All these people have to be paid, and they are paid out of money which we help to find.

This question of national payments has a special department, which has nothing else to do but to look after the national purse. This department is called the Treasury, and the member of the Government who is placed at its head is the chief lieutenant of the Prime Minister, and is called the Chancellor of the Exchequer. It is his duty to safeguard the national purse and to see that no money is wasted in carrying on the Government, and that the national purse is filled in a fair and proper way.

Before the Treasury can pay money to the various Government Departments to carry on their work, it has to obtain the money from the people, and every year the Chancellor of the Exchequer goes to

Parliament and makes a statement, called the Budget, showing what money each department estimates that it will want to carry on its work. At the same time he proposes a scheme by which he hopes to raise the necessary money through contributions by all British citizens. These contributions are called Taxes.

THE GREAT NATIONAL CLUB OF WHICH WE ALL ARE MEMBERS

Now we see the essential difference between an ordinary club, such as a cricket club, and the big club we call the nation. In the case of the cricket club we can join or not as we like, and no one can compel us to do so, or to pay the subscription, unless we wish it. In the case of the nation, we are born members of it, and unless we leave the country and become citizens of another country we are, as it were, compulsory members of the club, and are compelled, whether we like it or not, to pay the taxes which the Chancellor persuades Parliament to impose. It is an offence against the law not to pay a tax.

Taxes, then, are sums compulsorily paid by citizens towards meeting the expenses of the Government.

Before the war it cost about £200,000,000 a year to pay all the expenses of national government in Britain. Towards the end of the war it was costing thirteen times as much as this, so heavy were the war expenses. Even five years after the Armistice the bill for national expenses was about £900,000,000.

Such a gigantic national expenditure is a great burden on the nation. It must fall as the years go on, but for a very long time the national purse will need heavy sums to fill it, and therefore taxes must remain high. We can see how heavy the burden is for each taxpayer, because there are only about ten million families in the country, so that the national costs of 1923 amounted to £90 for every family.

THE TAXES THAT ARE LEVIED WITH EQUAL JUSTICE FOR ALL

If we think about this £90 a family we see that a Chancellor of the Exchequer could not propose to levy an equal tax of £90, or even of half that sum, on each family. £90 a year is more than £1 18s 0d. a week, and many families have less than that or not much more. It is because the incomes of various persons are so unequal that the Chancellor has to arrange his taxes so as to take much from those who are well-to-do, and little from the poor.

One of the best known of economists, Adam Smith, long ago laid down a famous maxim for tax-makers which ran as follows:

> The subjects of every State ought to contribute towards the support of the Government as nearly as possible in proportion to their prospective abilities; that is, in proportion to the revenue which they respectively enjoy under the protection of the State.

This maxim, although good, had to be improved on because the ability of a man to pay taxes is not really in proportion to his income. Take the case of two men, one with £500 a year and the other with £10,000 a year, and suppose we tax both in proportion to their incomes by levying 10 per cent on each. The man with £500 a year would pay £50 and have £450 left for himself. The other would pay £1000 in taxes and would have £9000 left for himself. The burden of 10 per cent upon one man is therefore much heavier than the burden of 10 per cent on the other. *By taxing in proportion to income we impose on the poor a heavy burden, and on the rich a comparatively small burden.*

THE MILLIONAIRE'S BIG TAX AND THE POOR MAN'S MITE

This consideration led to the development of the maxim of taxation now generally accepted, which is that:

Taxes should be levied in such a way as to establish equality of sacrifice between rich and poor.

This is the principle which is now carried out with more or less success in the taxes we all pay. A millionaire pays very heavy taxes while he lives, and his heirs have to yield up in tax a large proportion of the value of his estate when he dies. A very poor man pays little or nothing in taxes, and, indeed, he can if he chooses escape direct taxation altogether. A man with a moderate income pays a moderate tax.

The question of the manner and the degree of justice with which taxes are levied is far more important now than it used to be, because the national expenses have become so great. When it cost only £150,000,000 to pay the expenses of the country, as in 1905, the sum raised for each family was only £16 a year, or just over six shillings a week. Even then it was right to raise this comparatively small sum with due regard to the means possessed by the various orders of taxpayers—rich, comfortable, and poor.

As, however, the rates of tax were so low, small injustices in the rates did not amount to very much. But when the Chancellor of the Exchequer has to take £90 for each family errors in taxation may create great and undeserved hardships.

THE TAXES ON PEOPLE AND THE TAXES ON THINGS

What the Chancellor of the Exchequer does is to levy a large number of different taxes, all coming into two classes :

DIRECT TAXES. These are sums demanded directly from the person who has to pay them, and the demand is made on a printed form.

INDIRECT TAXES. These are not levied on persons but on things, so that persons who buy the taxed things pay the tax indirectly, whether they know it or not.

Mr. Gladstone, one of the most famous of the Chancellors of the Exchequer in the nineteenth century, was celebrated for his wonderful Budget speeches, and in one of them he compared direct and indirect taxation to two beautiful ladies, one dark and one fair, but both so charming that it was impossible to decide which was the more attractive. The truth is that direct taxes tell us exactly what we have to pay, while indirect taxes are so concealed that we are apt to forget them. That is why Chancellors of the Exchequer do not like to give up indirect taxes, even if they are unjust.

The chief direct taxes are the Income Tax, the Death Duties, and the Inhabited House Duty.

THE BURDEN ON A MAN WHO GIVES UP A THIRD OF HIS INCOME

The Income Tax is a levy on incomes. It is paid by all those having an annual income of a certain amount. Persons of small means are excused the tax altogether. When a man is married he pays less than if he is single, and if he has children he pays less still ; that is to say, an allowance is made to him for his wife and his children. The tax is arranged in steps, so that those having large incomes pay much more in every pound than those with small incomes. This variation is called *graduating* the tax.

To obtain more money still from the rich, a second income tax is imposed called the Super Tax. It is levied on those with more than a few thousands a year. With Income Tax and Super Tax, the income of a rich man is very heavily taxed indeed—often to the extent of a third of his income.

The second most important Direct Taxes are the Death Duties, levied on the value of the estates or possessions left by those who die. Very tiny estates are entirely excused from the tax. As in the case of the income tax, the duty is graduated so that a little fortune pays not very much and a big fortune pays very heavily.

Not only does the Chancellor of the Exchequer take a share out of the body of the fortune, but he also takes a share from the parts of the fortune as they are inherited by the heirs of the dead person. Altogether, these Death Duties bring in very large sums to the national purse.

A third form of direct taxation is called the Inhabited House Duty. It is levied on every person who takes a house, unless the house has a rental value not more than £20 a year. So all the little tenants escape, and this tax is really another income tax levied on those who have more than a little.

HOW OUR LUXURIES HELP TO SWELL THE NATION'S PURSE

There are a number of other direct taxes, large and small, which take the form of what are called Licence Duties. Thus, if we have a motor car we are compelled to pay a tax which varies according to the power of the car. Other licence duties are levied on us if we keep a dog, or carry a gun, or shoot game, or make or sell alcohol or tobacco. All these licence duties, it will be seen, are imposed on *luxury trades*, it being held that if a man can afford to keep a motor car or a dog he can afford to pay something extra to the State, and that if he makes or sells alcohol, which is a luxury which people can easily do without, he can afford to bear special taxation.

Another class of Direct Taxes is levied in the shape of what are called Stamp Duties, so named because they are collected by means of stamps fixed to documents. If we buy or sell houses, land, or stocks and shares, or if we enter into a money agreement, the document is not legal unless it bears a stamp which varies with the money paid. If we give a receipt for money over two pounds, the receipt is not legal unless it bears a twopenny stamp. If we draw a cheque it has to bear a twopenny stamp. All these

stamp duties are injurious to business, and only the necessity of the nation excuses them.

Now let us turn to Indirect Taxes.

The chief of these are levied on tea, coffee, cocoa, sugar, beer, wine, spirits, and tobacco. It is very important to understand them, because they are *concealed taxes*.

WHAT WE REALLY PAY FOR WHEN WE BUY A POUND OF TEA

One of the simplest to understand is that on tea, an article which is not and cannot be grown in Great Britain. When tea is imported it is taxed at the seaport. The tea having been bought wholesale, and the tax paid to the Government, *each pound of the tea is raised in price by the amount of the tax*. The wholesale merchant sells it to the shopkeeper at a price which includes the tax, and the shopkeeper sells it to his customer, of course, at a price which also includes the tax. A tax put on an article coming into the country is added to the price of the article when sold, so that the tax is paid by the consumer.

Therefore, when we go to the grocer's shop and buy a pound of tea, *what we really buy is tea and tax*, and there is no one to tell us, if we do not know it, that part of the price of the tea is not paid for tea at all, but for tax. Every time we buy a pound of tea we pay so much towards the Government's expenses.

We can see from this that the tea tax is not graduated in favour of the poor as the income tax is. When a poor woman buys a pound of tea she pays as much tax as when a rich woman buys a pound of tea. This is the great fault of indirect taxation, but governments stick to such taxes because they are effective, and because people do not notice that they are being taxed in this way.

TAXES THAT WE NEED NOT PAY UNLESS WE LIKE

When we come to the tax on the Drink Traffic we are dealing with things which are produced in this country and imported also, so that to tax them successfully the Treasury appoints officials to collect duties at the ports on imported beer and spirits, and other officials who keep account of all the beer and spirits made in our British breweries and distilleries, and tax every pint of it.

Different names are given to these two different collections. The taxes imposed on goods coming into the country are called Customs Duties, and the officials who collect them are Customs Officers. The taxes imposed at the breweries and distilleries are called Excise Duties, and the collectors are Excise Officers.

We have seen that poor men can escape direct taxation altogether, and if they take care not to drink alcohol, and not to smoke, they could almost escape tax altogether, for the only taxes they would pay would be those on tea, sugar, coffee, cocoa, and matches. As things are, a great deal of taxation is borne by the masses of the people who drink and smoke.

So far, we have dealt only with the taxes which are levied by the Chancellor of the Exchequer to pay for the nation's expenses. Our local governments in town and country have also to levy taxes to pay their expenses, which are very heavy, tending to increase, and often form a serious handicap to local trade.

THE LOCAL TAXES AND WHY THEY ARE CALLED RATES

The local authorities pay part of the cost of education—the other part being borne by the national government—and they have to undertake the very important and expensive duty of relieving the poor. Also they have to maintain streets and roads and sewage and lighting systems. They keep their neighbourhoods clean and tidy. They have to help to administer the laws, and they maintain the local police. Sometimes they run tramways, gasworks, electrical works, and markets; but these undertakings usually pay their way, and often yield a profit which goes towards paying some of the other expenses incurred locally.

The local government costs are paid for by levying local taxes which are called Rates. They bear that name because they are levied at a rate of so much in the £ on the rental value of houses, business premises, and farm-lands. In the case of private houses the local rate really amounts to a graduated income tax, because as a rule the richer a man is the bigger the house he lives in, the higher is the rental value of his house, and the greater, therefore, the amount he has to pay the local rate.

How to reduce rates and taxes is one of the chief anxieties of governments, and it is one of the most terrible burdens of the war on the nation that taxation has become almost too heavy to be borne.

FLOWERS OF THE CORNFIELD

1. CORN MARIGOLD 2. CORN PARSLEY 3. CORN GROMWELL 4. COMMON CORN-SALAD 5. BLADDER CAMPION 6. SUN SPURGE 7. RED POPPY 8. HEARTSEASE 9. CORN CHAMOMILE

1. CORN-COCKLE 2. COMMON HARE'S EAR 3. CORN MINT 4. SMALL BUR PARSLEY 5. CORNFLOWER
6. WILD CHAMOMILE 7. TOOTHED CORN-SALAD 8. FIELD BINDWEED 9. IVY-LEAVED SPEEDWELL

1. CORN WOUNDWORT 2. BLUE PIMPERNEL 3. MEADOW HAWKBIT 4. LARGE YELLOW-RATTLE
5. PURPLE COW-WHEAT 6. PINK PERSICARIA 7. LESSER SNAPDRAGON 8. COMMON RED HEMP-NET

1. SCARLET PIMPERNEL 2. SHEPHERD'S NEEDLE 3. CORN SOW-THISTLE 4. CLIMBING PERSICARIA
5. PHEASANT'S EYE 6. FIELD MADDER 7. OX-EYE CHAMOMILE 8. MOUSE-TAIL 9. FIELD SCABIOUS

Rousseau Island in the River Rhone at Geneva

SWITZERLAND

THE standing invitation from Switzerland to the nations of Europe is *Boys and girls come out to play*. They respond very willingly, thousands and thousands of them, not only from the neighbouring countries of Germany, France, Italy, Austria, but through them—for Switzerland has no sea-coast—from Holland, Great Britain, and the Far West; from Russia, and everywhere else.

We have not far to look to find out the reason why this small country, about half the size of Ireland, is so attractive. The face of Switzerland is very different from the scenery usually before the eyes of dwellers in the cities and villages of our own land. Dazzling white mountains stand out against the bluest of skies; dark forests contrast with bright green meadows down the hill-sides, and reach to the shores of wide lakes of ever changing colour—purple, blue, green; and into the lakes pour the foaming white rivers.

As we look at these beautiful features on the face of Switzerland we realise what an influence the shape of the country has had in shaping its story. Switzerland can well say "My face is my fortune," not only because its beauties year by year attract travellers who spend in it an enormous amount of money, but because its protecting and invigorating mountains, its fertile valleys and useful lakes, have enabled the Swiss to develop into a sturdy, free, industrious nation.

There are today rather less than four millions of Swiss—little more than half the population of London; but they live independent in the midst of powerful neighbours, who have tried to annex their country in times past.

Before glancing at the story of the past, let us try to get a clear idea of Switzerland itself. The great solid mass of the Alps, the highest land on the Continent, stretches across Europe from the Rhone to the Danube. Its western end is in France, where, south of Lake Geneva, the highest peak of all, Mont Blanc, rises over 15,000 feet. Its eastern end is in the Austrian Tirol. It is the central part of the great highlands that cover more than half of Switzerland with grand ranges of mountains, the tops of many being above the line of perpetual snow. Among others there are Monte Rosa, nearly as high as Mont Blanc, the Matterhorn, near where Switzerland touches Italy, the Jungfrau, and many more about forty or fifty miles north of the frontier.

Valleys separate the ranges and groups of mountains; some a mere cleft in the bare rocks; some wider, and green with

grass and gorgeous with wild flowers in spring and summer; others filled with deep, dark forests.

In nearly all the valleys are leaping and dancing streams. High up the rivers only slide and crawl a few feet in a year, for they are frozen solid. These glaciers, or rivers of ice, some of them twenty miles long, are the chief wonders of the Alps. Their surface is usually very rough and heaped up, like waves suddenly frozen hard. The edges of the ice, seen in the great cracks called crevasses, are of a vivid blue colour, as they are also at the end of the glacier, where the warmer air forces the ice king to loose his grip, and the water escapes on its way to the sea.

Comparatively few of Switzerland's visitors climb over the glaciers and up the highest peaks. It needs strength and endurance to climb in the intense cold, roped to guides, who show the way and cut steps when needed in the ice. But those who do go enjoy it amazingly, so fine is the pure air, so grand are the spacious views and solemn stillness of this white world.

THE GREAT WHITE WORLD BATHED IN GLORIOUS RED AND GOLD

But it is not always white, for at sunrise and sunset in clear weather both sky and snow are bathed in glorious colour—rosy red and gold. The stillness, too, is often broken by the thunderous roar of avalanches—masses of snow which slip down the mountain as snow slides off a roof, overwhelming any life that may be below.

Between the High Alps and the plateau of Switzerland there is a beautiful mountainous district which reminds us of Scotland, with its picturesque rocks and pine-woods, its heathery moors and mountain lakes. In many of the valleys, and round the lakes of Thun, Brienz, and Lucerne, thousands of visitors find villages in which to stay. There are even hotels at the tops of some of these mountains, such as the Pilatus and the Rigi, with wonderful railways which climb up the steep mountain-sides from the valley.

In the plain of Switzerland, which lies between the Alps and the Jura Mountains to the north, are little wooded hills and green slopes, wide fields shaded with fruit trees, or richly cultivated with crops. The country is covered with towns and villages; everybody is busy, working either in the fields or in the towns at various manufactures. At the south-west of the plain lies the great Lake of Geneva, so large that it takes a fast steamer two hours to go from one end to the other. Geneva is at the south corner near France. At the north-east of the plain is Lake Constance, whose farther shore is in Germany. Between these two largest lakes are many smaller ones, such as those of Neuchâtel, Bienne, Zürich.

THE RIVER WHICH RUNS DOWN FROM SWITZERLAND INTO FRANCE

All the chief towns of Switzerland lie round the lakes, or on the rivers of the plain. These rivers rise within a few miles of each other in a central mountain mass near St. Gothard, and run in different directions. There is the Rhone, rising in a beautiful blue grotto of ice, at the end of the Rhone glacier, and running along a wide and fertile valley to Lake Geneva. It is most interesting to watch the colours of the water of this river as it pours into the lake. Soon after leaving the other end of the lake the Rhone passes into France on its southward journey to the Mediterranean.

The upper Rhine takes a north-easterly course to Lake Constance, and after leaving it at the farther end, makes the wonderful falls at Schaffhausen, and later, turning north at Basle, becomes the German Father Rhine. The River Ticino rises near the Rhine, and flows down the south slopes of the Alps, leaving Switzerland as it passes through Lake Maggiore to join the Po, the great river of North Italy.

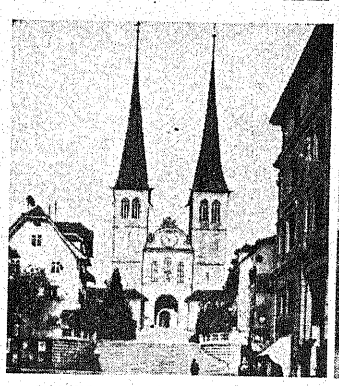
The River Inn, on its way to join the Danube, rises not far from the Rhine. Another important Swiss river is the Aar, which rises near the Rhone and flows through Brienz and Thun, and then along a winding course to the Rhine. Berne, the capital of Switzerland, is on the Aar.

MEN WHO LIVED ON PLATFORMS IN THE LAKES TO ESCAPE FROM BEASTS

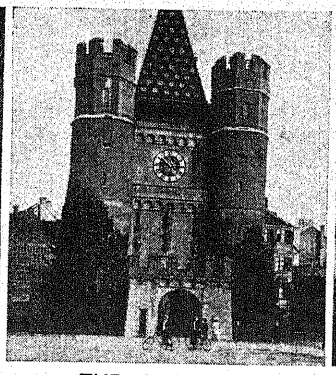
In the Museum of Berne there is a deeply interesting model of a settlement built on a lake. It shows us how piles were driven into a soft shore where the water was shallow; how a floor of wood was fastened above the piles; and how, on this floor, the huts were built of wood and hurdles, and roofed with rushes. There was a gangway easily removed to connect with the shore.

As far as we know, the people who lived in these lake-dwellings were the earliest

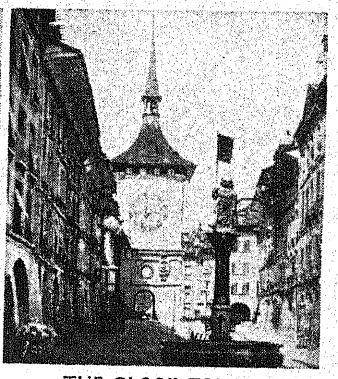
THE LITTLE TOWNS OF SWITZERLAND



SAINT LEODEGAR CHURCH
AT LUCERNE

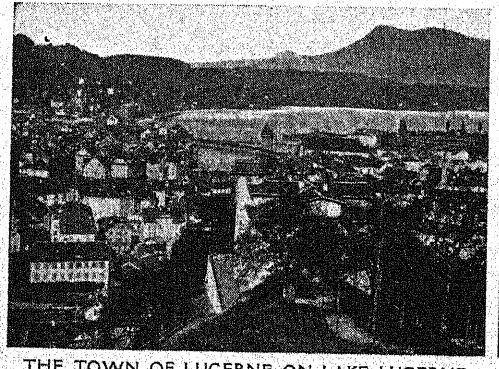


THE SPALENTOR
AT BASLE

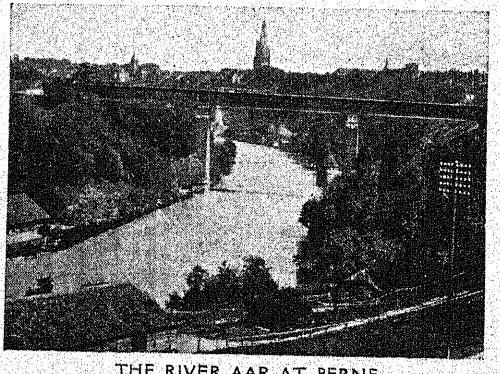


THE CLOCK TOWER
AT BERNE, THE CAPITAL

THE CATHEDRAL OF NOTRE DAME AT LAUSANNE, ON THE NORTH SHORE OF LAKE GENEVA



THE TOWN OF LUCERNE ON LAKE LUCERNE



THE RIVER AAR AT BERNE

to settle in the country. At any rate, it is believed that their times date back to a thousand years before Christ. Life was very wild then in Central Europe, and it is supposed that men made their homes in this fashion to get out of the way of wild animals and their wild neighbours.

THE FIRE THAT PRESERVED THE STORY OF THE VERY EARLY DAYS

We should know very little about the lives of these folk if their possessions had not been preserved by fire. This sounds strange, but when the flames were consuming these old homes the remains became crusted with charcoal as they fell into the soft bed of the lake beneath, and so they have lasted safe and perfect to these days.

In the Prehistoric Room of the British Museum we can see the nets, the blackened stones, the raspberry-seeds and ears of corn, the fishing boat and hooks, the pottery, small mugs for the children, and tiny bracelets for their arms, among many other things that make this far-away time quite real to us.

The next race of men who made their home in the plain of what we now call Switzerland were the Celts, in many ways like those who lived in Britain. They were very brave and warlike, fond of ornaments and fine armour, and were led by Druid priests. Gradually they were subdued by the all-powerful Romans, who adopted the same plans as they did later in Britain. Fine roads were made across the high passes of the Alps from Italy to the towns established in the plain under Roman rule.

Two chief roads were over the St. Bernard Pass and the Julier Pass—where there are still two milestones of Augustus Caesar, in whose reign Christ was born. In the museums of all the large towns of Switzerland are many remains of the conquerors of the Helvetians, as they called the chief of the Celtic tribes. Along the beautiful and sheltered shores of Lake Geneva the rich Romans had fine villas, and to this day there are ruins of buildings belonging to the Roman times.

HOW TRIBES WERE BLENDED TOGETHER TO FORM THE SWISS NATION

East Switzerland was never so thoroughly Romanised and subdued as the western part, and so, when the German tribes succeeded at last in settling in the country—the power of Rome having died out—the Alemanni in the north-east entirely absorbed the Celts who lived there, and who had but little power of resistance, and planted a true German people, with their own laws, language, manners, and customs. With the Burgundians—also a German tribe, who settled in the south-west—it was different. The newcomers brought fresh vigour into the country, but were influenced by the civilisation of the Romanised Celts, and were gradually blended with the earlier settlers, thus forming a new people, the foundation of whose speech was Latin. This was the beginning of a German speech and a Latin speech, which developed into French, being spoken side by side in this little central country. There is no Swiss language today. The larger eastern part still speaks German, and the smaller western part speaks French. Where the south border now runs down into Italy, the people speak Italian.

For long years the two races were at war with each other, then both were subdued by the Franks, who governed by their officers and counts. The great Charlemagne, whose dominions extended from Spain to Hungary, from Denmark to Rome, spent much time in Switzerland.

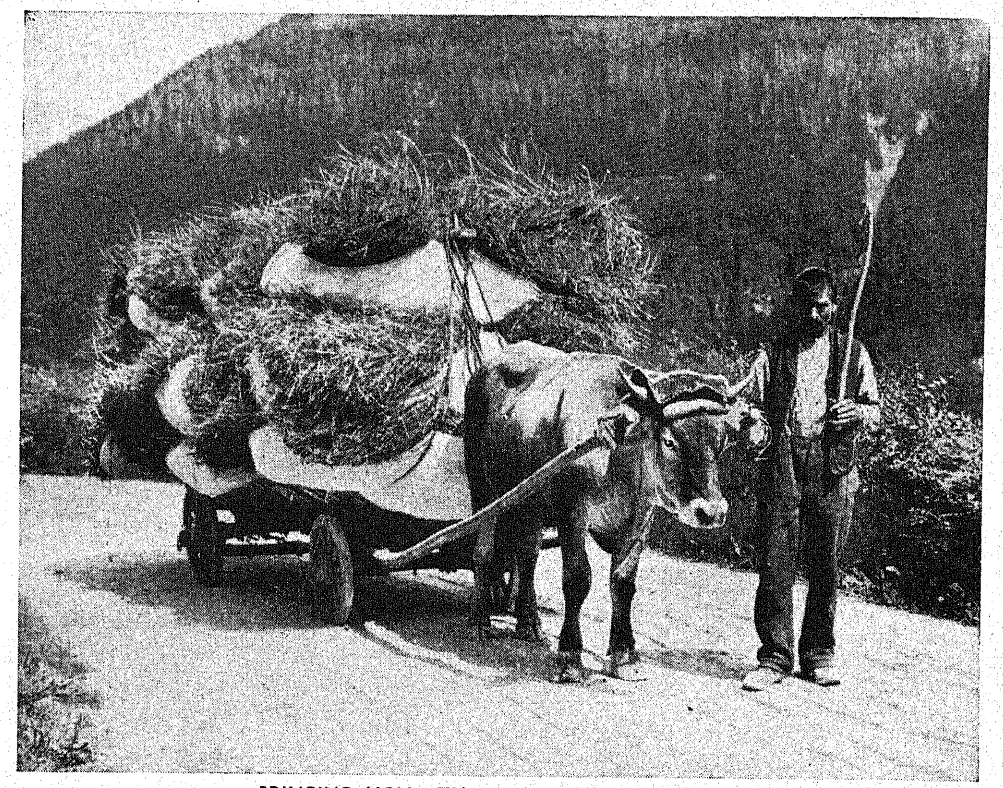
THE IRISHMAN WHO FOUNDED A SWISS ABBEY AND FORMED A LIBRARY

Many great monasteries and abbeys were founded or made more important in Charlemagne's days. One was that of St. Gall, founded by an Irish missionary. In this learning was carried on, and valuable books were written and collected during the years of warfare and trouble which distracted the country. At St. Gall, now one of the chief industrial towns of Switzerland, many of these old manuscripts are still to be seen.

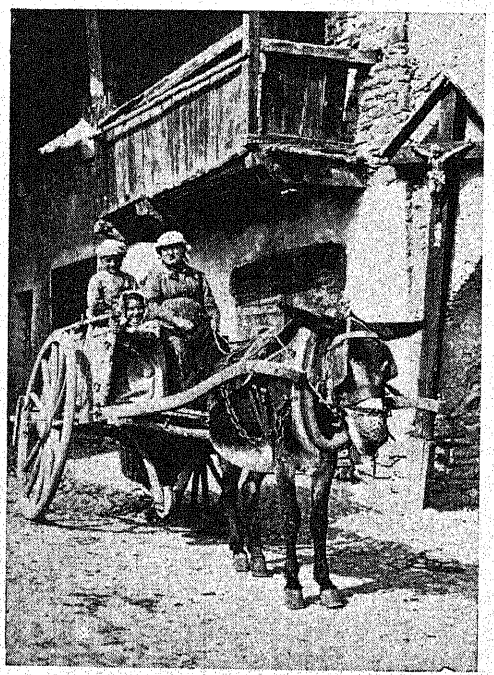
When Charlemagne's dominions were divided, the east and west divisions of what is now Switzerland fell apart again, boundaries and rulers were constantly changing, and the people had a desperate struggle to keep any of the old rights, so dear to the hearts of all nations of German descent. Powerful churchmen, and great families who had secured large grants of land, all managed to destroy the liberties of those who lived on the soil.

When the German emperors took possession of the country they governed by nobles, who became more and more powerful as the power of the Holy Roman Empire declined.

COUNTRY LIFE IN SWITZERLAND



BRINGING HOME THE HAY IN THE ENGADINE



VILLAGERS OF AOSTA RETURNING FROM MARKET

A GOAT BOY AND HIS CHARGES ON AN ALPINE HILL

These towns were walled-in, and they had charters which gave them freedom to trade and make money, like the free towns of Germany. Fribourg and Berne date from the twelfth century, and in their fine old buildings and handsome fountains we have many reminders of the far past.

In the next century comes the rise of the Hapsburg family, from among a crowd of nobles on Swiss soil, all trying by conquest, marriage, purchase of lands, or unjust takings, to get the lead. We have read elsewhere of Rudolph of Hapsburg, who rose to be German Emperor. In Switzerland he waged war with Berne, forced lands from nobles and abbots, and seized farms and estates ; and his heavy hand was felt all over the country. Perhaps because it was so heavy the people resolved to bear it no longer. Anyway, the love of freedom seemed to revive, and their determination raised an enduring obstacle to the rule of the Hapsburgs.

One of the tributaries which make the Aar so large and full when it joins the Rhine is the Reuss. Leaping down the rough sides of the St. Gothard, it passes on through a long, narrow lake with many branching armlets, and out at the farther end with rapid swing, past the beautiful old town of Lucerne.

THE FIERCE FIGHT FOR SWISS FREEDOM WHICH TOOK PLACE ROUND A LAKE

It was round the shores of the Lake of Lucerne—sometimes called the Lake of the Four Cantons, because four cantons (or counties) share its shores—that the brilliant struggle for Swiss independence was carried on in the thirteenth and fourteenth centuries against the hateful tyranny of the Hapsburgs.

Three out of the four cantons formed a league. They were Schwyz, Unterwalden, and Uri ; it is from Schwyz that the name Switzerland comes. The men who lived in these three famous cantons were descendants of the freedom-loving Alemanni, and for them the lake was a common outlet and rallying place. Their towering mountains and valleys, hidden away from the rest of the world, had kept them distinct and self-reliant, and their bodies were hardy from the perpetual struggle to make their living under difficulties ; their spirits were bold and fearless from constant contact with danger, which each had to meet for himself. Added to this was the intense love of country which makes brave men dare anything. When once we see this glorious country, its towering mountains, its frowning rocks, its widespread forests, its lovely green slopes, its orchards and meadows, and the unspeakable beauty of the lake with its soft blue distances and deep shadows, it is easy to understand the patriotism of the three forest cantons.

HOW THREE MEN MET IN THE MOUNTAINS BY NIGHT TO SAVE THEIR COUNTRY

Many of the romantic stories that have been handed down through the centuries about these times are now considered untrue ; but they are so firmly embedded in the country's story, and illustrate in such a graphic way the spirit of the times when the union of the States was taking place against a powerful enemy, that we still love them. One of the stories tells how, on a green meadow above the Uri branch of the lake, three patriots who had suffered greatly from Hapsburg rule met in the still, dark nights to talk over their wrongs, and vowed to free their country from oppressors. Friends joined them till the band became thirty-three. As these men raised their right hands to heaven, making covenant together, " One for all, and all for one," the sun shot its first cheering rays over the mountain-tops, and seemed to promise success. The three men of Ruetli (Ruetli meaning the secret meadow) have long been national heroes of the Swiss, who showed the way of resistance to their countrymen.

The romantic story of William Tell, who shot the apple from his son's head, is told on page 529. All over Switzerland are statues and pictures to illustrate the act. One of the most beautiful poems of Schiller has spread the story or legend of William Tell all over the world.

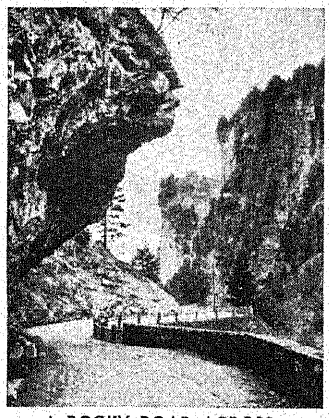
A WHIRLWIND RUSHING DOWN ON THE FRIGHTENED AUSTRIANS

In 1315 the spirit of resistance to the Hapsburgs led to the great battle of Morgarten, and this victory began a series of successes which for two centuries increased the feeling of union. At Morgarten the large Austrian army was overwhelmed and destroyed in a narrow pass by the mountaineers, few in number. They lay in wait on the heights, and at the right moment hurled down on their foes stones, rocks, and trunks of trees. Then the main body of the men of Schwyz and Uri rushed like a whirlwind down the hill on the terrified Austrians.

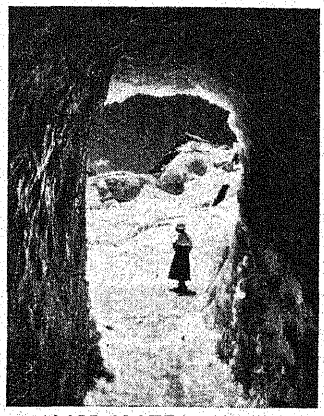
Some seventy years later the Austrians were again defeated. The battle of

SCENES AMONG THE MIGHTY ALPS

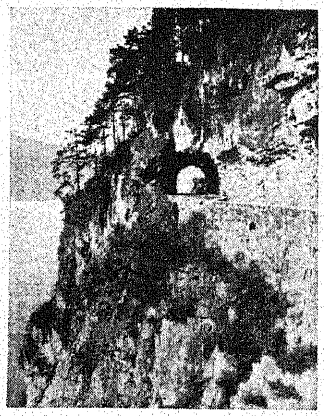
A HAMLET ABOVE ZERMATT, HIGH UP IN THE ALPS



A ROCKY ROAD ACROSS THE ALPS

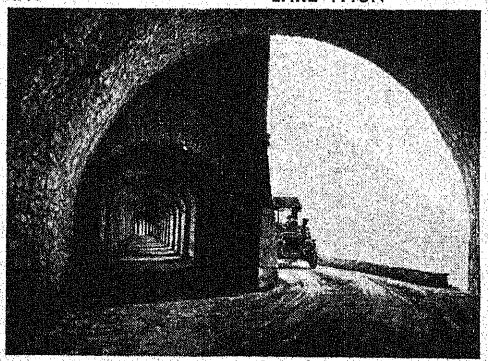


AN ICE GROTTO ON THE JUNGFRAU



A MOUNTAIN ROAD ABOVE LAKE THUN

REICHENBACH FALLS, NEAR MEIRINGEN



A WINTER GALLERY ON THE SIMPLON PASS

The pictures on these pages are by The Swiss Federal Railways, Messrs. E. N. A., Gaberell, Gyger, McLeish, and others

Sempach is famous for the bravery of Arnold von Winkelried, of whose heroism we read in a poem on page 4682. There is a fine monument to Winkelried at Stans, in Unterwalden.

HOW THE BRAVE SWISS PEOPLE MADE THEIR INDEPENDENCE SAFE

Towards the middle of the fifteenth century there were eight cantons joined in union, and such was their power that they succeeded in getting the better of the Austrian Hapsburgs, and also of the Duke of Burgundy, who harassed the west side of Switzerland nearest to France. At last the unity and bravery of the Swiss succeeded in making their independence secure, though in name they were attached to Austria till the Peace of Westphalia, in 1648, which ended the Thirty Years War.

Switzerland had its own Reformation about the beginning of the sixteenth century. Large numbers of the people listened to the teaching of the reformer Zwingli and others, and left the Church of Rome. Ulrich Zwingli, who was born on New Year's Day in 1484 and died in the autumn of 1531, gained his power over the people by his bold preaching. He introduced the doctrines of the Reformation before they were advanced by Luther. Eventually war arose between the Roman Catholics of the Forest Cantons and the followers of Zwingli in Zürich, and in 1531, at the battle of Cappel, where the men of Zürich only numbered one to four, Zwingli himself was slain. He was one of the most prudent and tolerant of the reformers. Unhappily, bitter feelings between the Roman Catholic and the Protestant cantons followed, and there were long civil wars before religious freedom was won.

THE OLD SWISS REFORMERS AND THEIR ENGLISH FRIENDS

At Zürich are to be seen many letters from eminent people of Reformation times, which show how much intercourse and friendship there was between the English and Swiss in those days. Especially interesting to us are those of Lady Jane Grey, when a studious girl of fourteen, to one of the Swiss preachers. She translated part of one of his books into Greek for a Christmas present to her father, and asks his advice how best to study Hebrew. At the last sad moment in the Tower, when at the block itself, the poor girl took off her gloves and asked that they should be sent to her Swiss friends. Letters from Queen Elizabeth, too, are among those at Zürich, encouraging the Swiss cantons and cities in their struggle for liberty.

Switzerland shared in the progress of those times when people began to care for study and art. The little country has reason to be proud of its writers and scholars, and the artists who have left such beautiful work behind for later times in the stained glass, wonderful carvings, and painted tiles still to be seen. Refugees from religious persecution in other countries did much to foster trade and industries, especially the weaving of linen and silk. But, despite all this prosperity, a time of decline set in.

The deeds of daring and courage which led to the rise of the Swiss people spread their military fame over Europe, and Swiss soldiers were eagerly sought after, and hired for pay to fight in other armies, especially in France. This was bad for the independent nation.

THE CRY FOR HUMAN FREEDOM THAT RANG THROUGH THE MOUNTAIN LAND

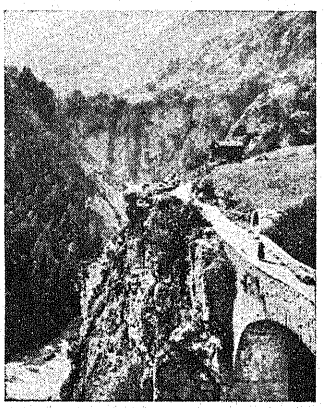
Again, the influence of the despotic Louis the Fourteenth spread over Switzerland as it did over Germany, and the spirit of absolute rule led to the peasants being ground down and deprived of their rights, while the governing classes indulged in luxury. There were many grievous risings, and the country was in a sad plight when the cry of the French Revolution, *Liberty, Equality, Fraternity*, spread, echoing over the plain of Switzerland.

When Napoleon turned Europe upside down, Switzerland could not escape. French armies, often fiercely resisted, passed through the cities, across the plain, over the snowy mountains at will. Napoleon made grand roads—that over the Simplon Pass is a wonder of the world—as Caesar had done centuries before, and seized Swiss money and treasures. Then Napoleon turned the country into the Helvetian Republic, under his own eye. The Swiss naturally hated the pounding of the cantons into one State, and the old spirit of bravery and resistance flashed out again and again.

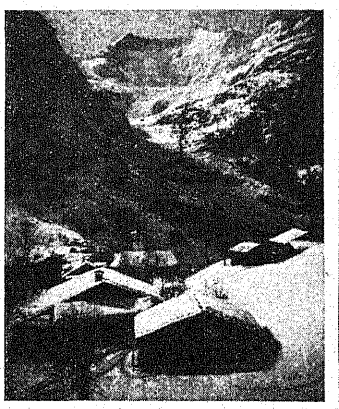
But it was not till after the Battle of Nations at Leipzig that the weight of Napoleon's hand was removed, and the Swiss were far from satisfied with the arrangements made at the Congress of Vienna. Many changes had to be lived through in the years of the nineteenth

century before the 22 cantons settled down to a federal union, perhaps the freest and most representative in the world.

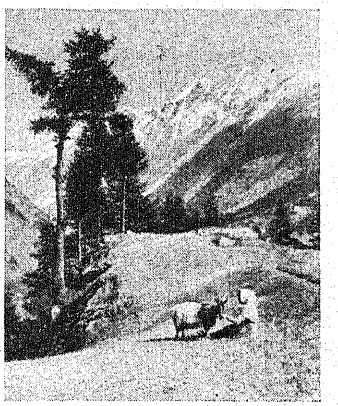
The Swiss believe that education alone makes free, and their arrangements for teaching are such that they reach to the poorest child in the remotest valley, thus fitting all to take part in the universal voting by which the country is governed. Pestalozzi was one of the great leaders in improving education, and his influence has spread far beyond Switzerland. John Henry Pestalozzi thought out the principles of education with care and originality, and put them directly into practice himself; but he was a thoroughly unpractical man in the ordinary affairs of life, and his management of a school always collapsed because he could not organise it in a businesslike way. None the less, he attracted wide attention by his methods of teaching, and they are still studied with interest. Born at Zürich, he lived from 1746 to 1827. Great attention is given also to teaching trades of all kinds, and since the introduction of machinery Swiss industries have increased marvellously. Water power in the leaping torrents from the mountains is turned to use in saw-mills and other factories. Every village, even the most remote, has electricity for lighting and power, and the telephone is available for all. Early last century in the cloisters of the famous St. Gall Monastery arose the hum of spinning, and in Zürich and the neighbourhood began the cotton and embroidery manufactures now so famous all over the world. The production of silk goods holds its own at Zürich and Basle, and at Neuchâtel and Geneva are made watches and musical boxes.



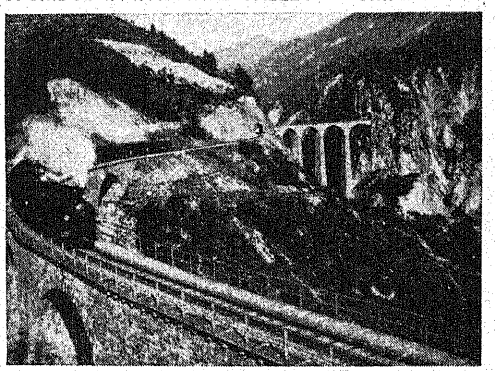
A BRIDGE IN THE SAAS VALLEY



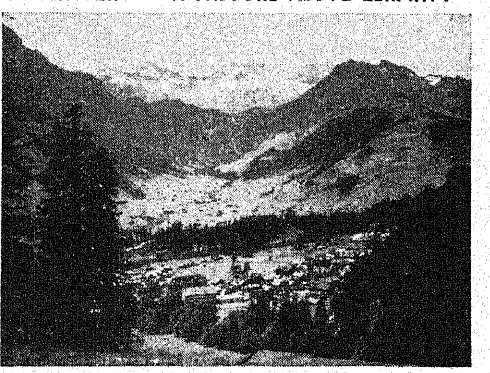
GRINDELWALD IN WINTER



A PASTURE ABOVE ZERMATT



A RAILWAY THROUGH THE ALBULA PASS



THE BEAUTIFUL VALLEY OF ADELBODEN

Berne, the capital of the country, has a population of about a hundred thousand people, and is the fourth town in size. Zürich, with 200,000, is a great industrial and educational centre. Basle, in the north (140,000) is the distributing railway centre of the country. Geneva, in the south, has about 140,000 inhabitants, many of these being foreigners. Other towns with more than 40,000 people are St. Gall (70,000), Lausanne, an educational centre (68,000), Winterthur (50,000), an engineering town, and Lucerne (45,000).

All round the borders of Switzerland trains now bring in the coal and raw materials needed by this industrious country, and carry away its finished work. Switzerland has also to obtain from abroad much grain, as well as coffee, rice, eggs, and other foods.

RAILWAYS UNDER THE MOUNTAINS AND ABOVE THE CLOUDS

The lines which pass into Italy depend on the wonderful tunnels that have been made through the masses of the Alps. The Mont Cenis Tunnel is in the French Alps. The St. Gothard Tunnel is rather longer, and the Simplon Tunnel is twelve and a quarter miles long. The Arlberg tunnel connects northern Switzerland with Tirol. The engineering of all these Alpine railways is most wonderful, not only in the matter of tunnels, where workmen starting from the two ends meet in the middle of the mountain, but also in the loop railways, and the numberless mountain lines that climb over passes, and up steep inclines to heights often above the clouds.

It is delightful to get a peep into the life of the mountain folk, to see them taking charge of the herds of cows with their tinkling bells; making cheeses in the little huts; carrying down an immense weight of them to sell in the markets below. It is touching to notice how every little scrap of land is made the most of, and how the little bits of hay are collected in a net and carried to the loft to be stored for winter. For, as the cold and snow come on, the cattle are driven down from the heights when there is nothing for them to eat; and there is much lowing and jingling of bells as they make their way down.

HOW THE CROSS OF SWITZERLAND BECAME THE SYMBOL OF MERCY

A large trade in condensed milk is carried on in Switzerland, and the milk of Swiss cows is also used in chocolate-making. In the winter many of the mountaineers carve little animals, chiefly bears, like those to be seen in the pit at Berne, and little chalets such as they live in themselves, with stones on the roof, to keep it on in the stormy winds. They are also very clever in making flowers, and other delicate things, out of ivory.

It was at Geneva that the Red Cross was formed in 1861, the principle being accepted, by all nations gathered there, that nations at war shall never fire on ambulances or hospitals, with nurses and doctors who are caring for the wounded, under a red-cross flag. That is the flag of Geneva. The flag of all Switzerland is a white cross on a red ground.

During the Great War Switzerland was kind to all countries alike, and without favour helped the wounded and prisoners; and when the League of Nations was formed, to prevent wars and promote justice between nation and nation, Geneva was made the headquarters of the League.

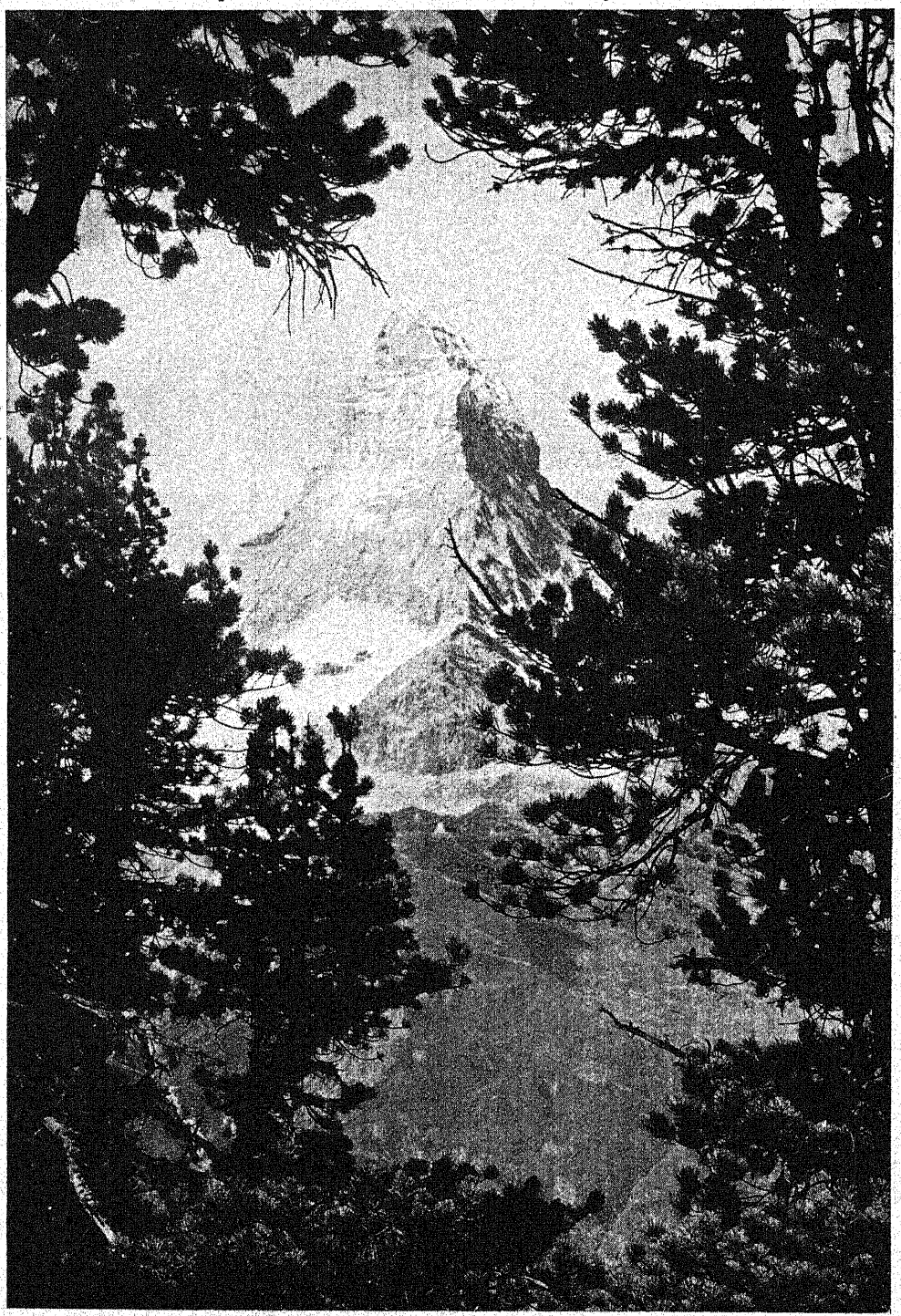
Each of the Cantons has local government of a kind devised by itself, but all the Cantons join in a general government for the Confederation. This Federal Government regulates war, peace, and treaties; the army, railway, post, coinage, and weights and measures; bankruptcy, patents, precautions against epidemics, public works on a national scale, and largely education. Other public affairs are treated as local.

THE DEMOCRATIC GOVERNMENT OF THE LITTLE ALPINE NATION

The Swiss Parliament consists of two chambers, a State Council of 44 members, two from each Canton, and a National Council of 198 members, one for every 20,000 of the population. Elections take place every three years. Every man has a vote in his twenty-first year, and any voter may be elected. No other country in the world is as thoroughly democratic as Switzerland.

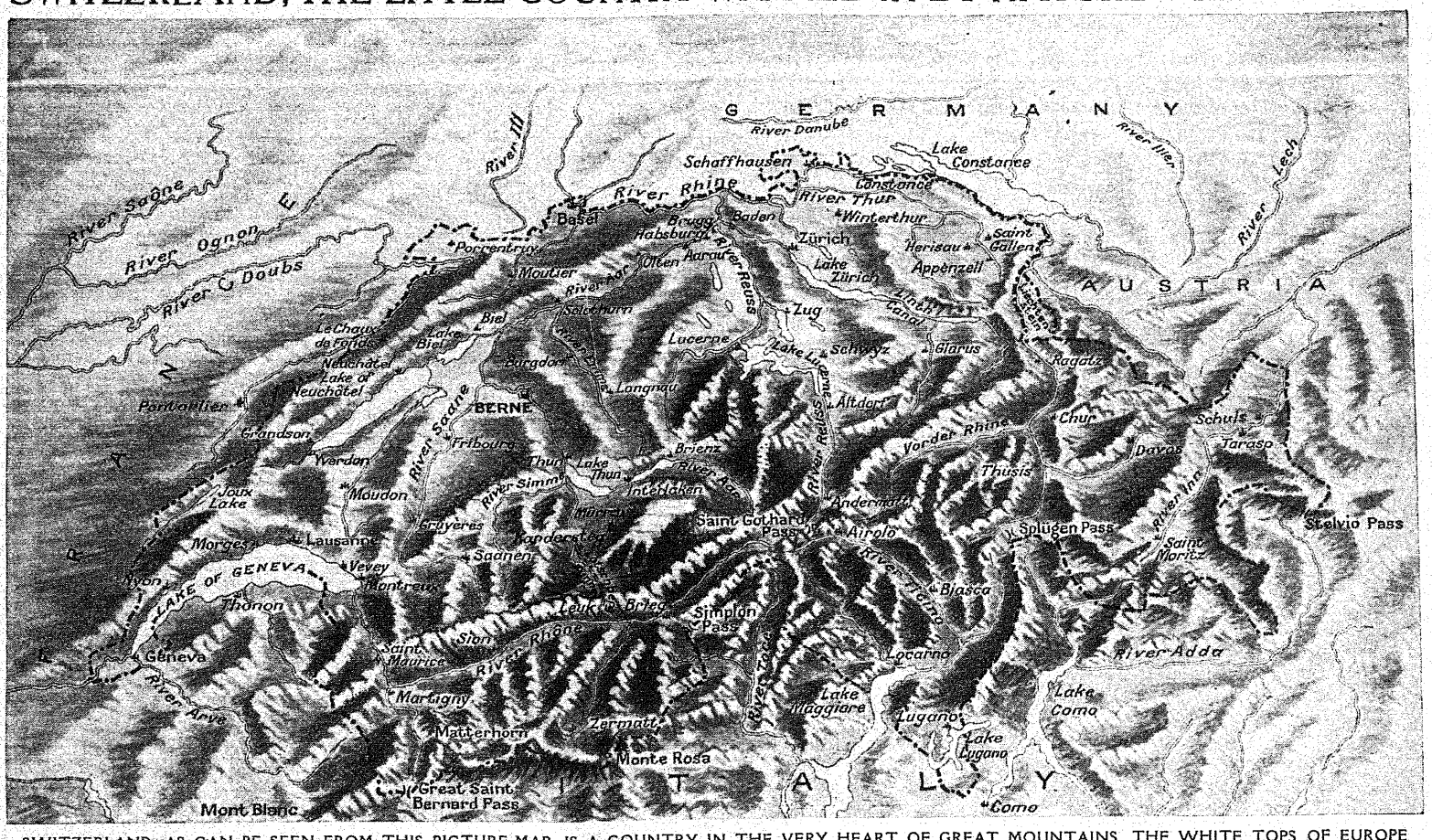
The electors can introduce legislation into the Parliament directly if 50,000 of them demand it. They can also object to any law passed by the Government by sending in a petition of 30,000 citizens. Then a direct vote of the whole nation must be taken, and if there is a majority of the electors and also a majority of the Cantons against the law, it may be vetoed or amended. This supervision of laws by the people direct is called the Referendum.

The executive authority is a council of seven members elected for three years by the Parliament. Its members may not hold any other office or do any other business. The President and Vice-President are elected by the whole Parliament for one year. These supreme officials are usually business men who have won general confidence, and the spirit of this most democratic of all governments is one of modest simplicity with business efficiency. It may often happen that the President of Switzerland is to be found opening the door of his small house to a caller, or receiving visitors in his shop or his office.



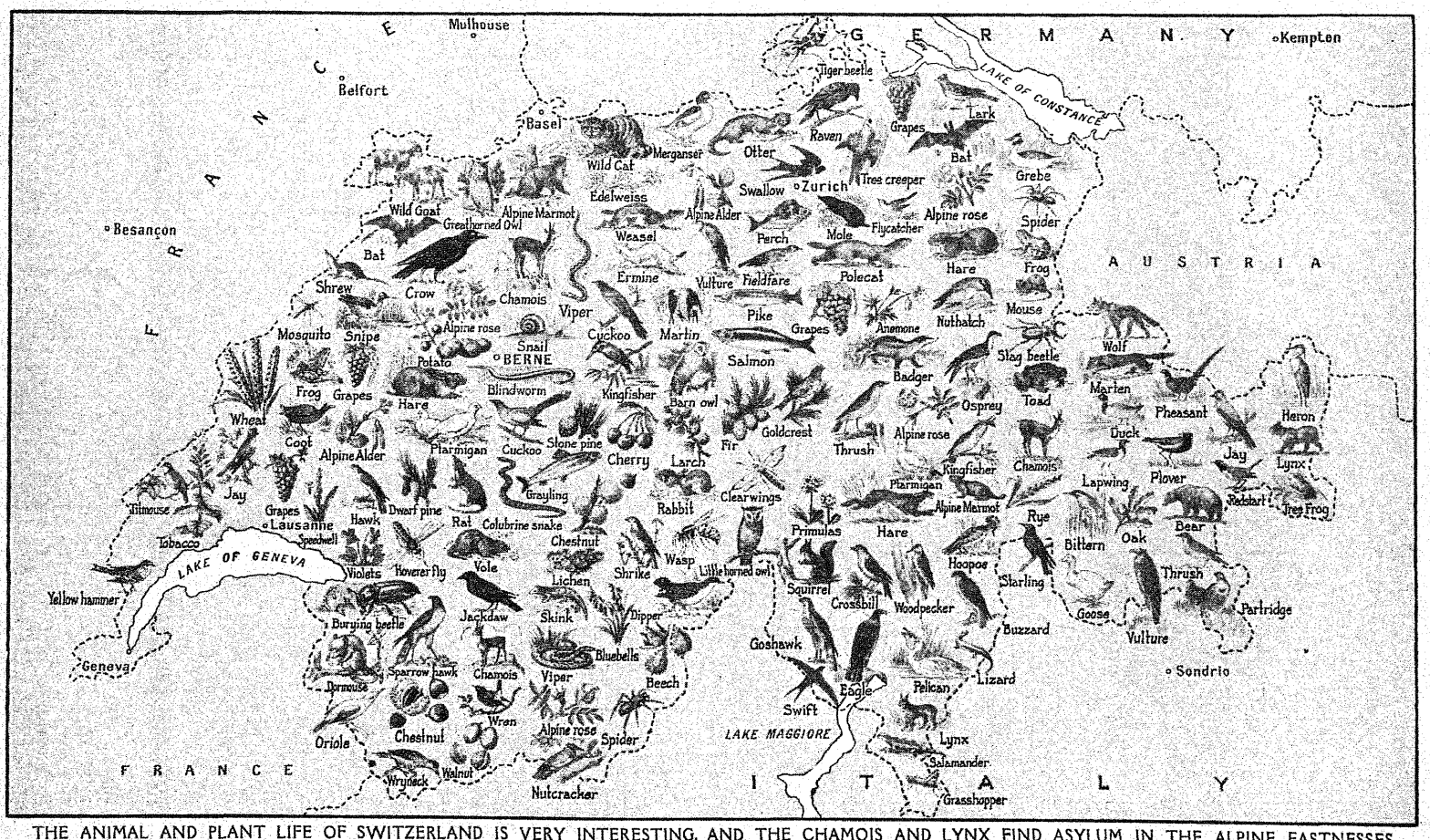
THE MATTERHORN
From the splendid photographic gallery of Mr. Herbert Ponting
4675

SWITZERLAND, THE LITTLE COUNTRY WALLED-IN BY NATURE'S RAMPARTS



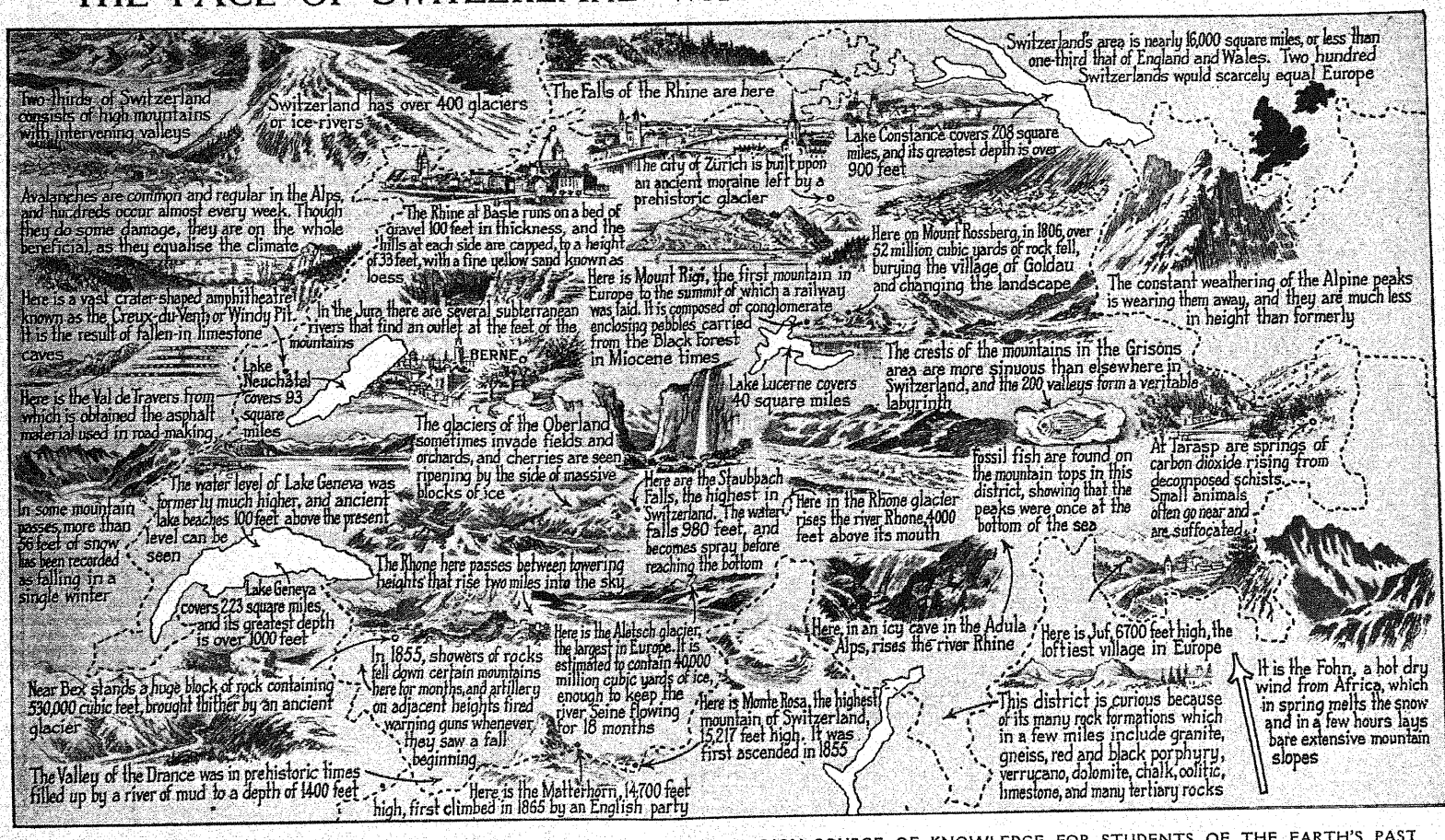
SWITZERLAND, AS CAN BE SEEN FROM THIS PICTURE-MAP, IS A COUNTRY IN THE VERY HEART OF GREAT MOUNTAINS, THE WHITE TOPS OF EUROPE

THE VARIED ANIMAL AND PLANT LIFE OF SWITZERLAND



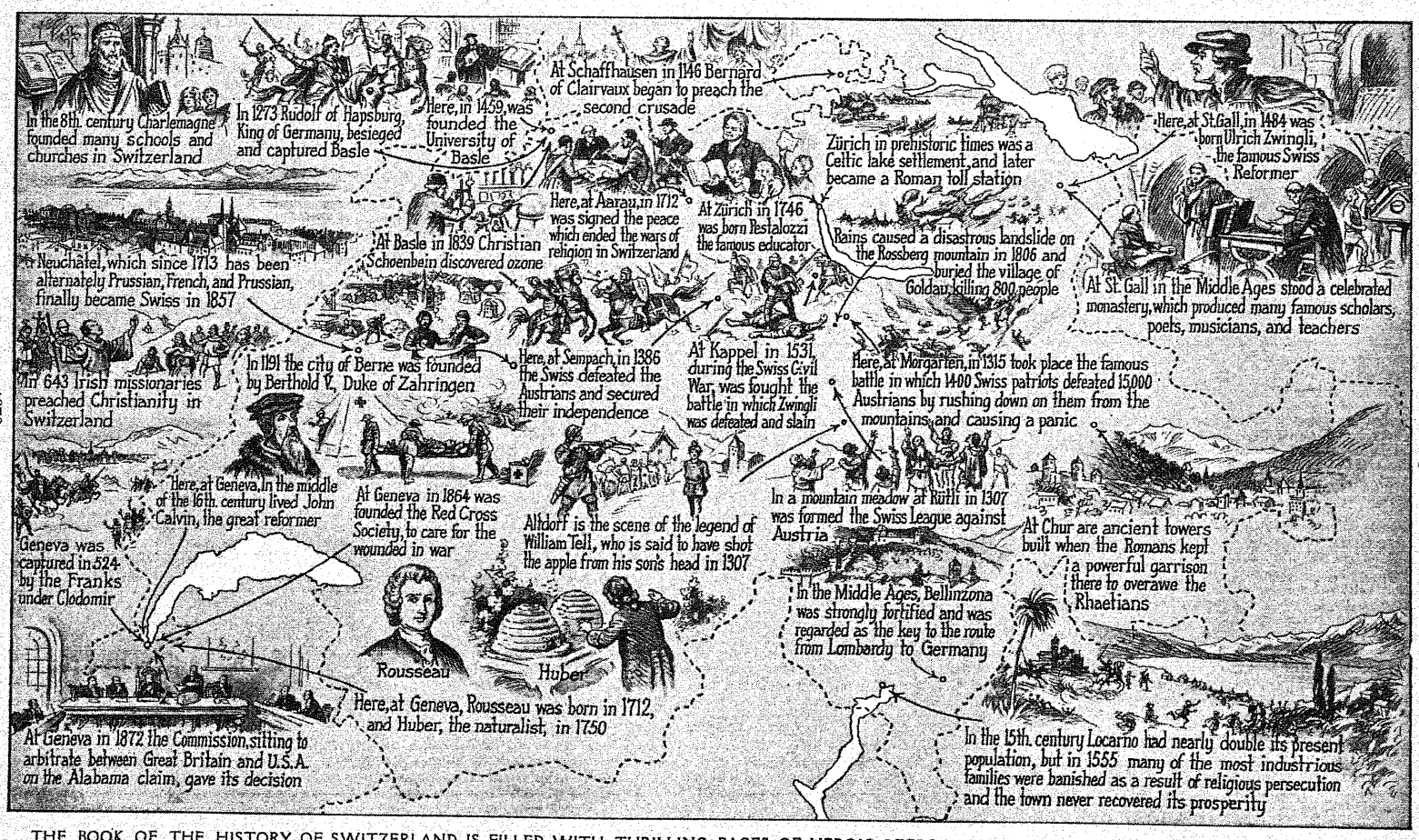
THE ANIMAL AND PLANT LIFE OF SWITZERLAND IS VERY INTERESTING, AND THE CHAMOIS AND LYNX FIND ASYLUM IN THE ALPINE FASTNESSES

THE FACE OF SWITZERLAND WITH ITS WONDERFUL MOUNTAINS



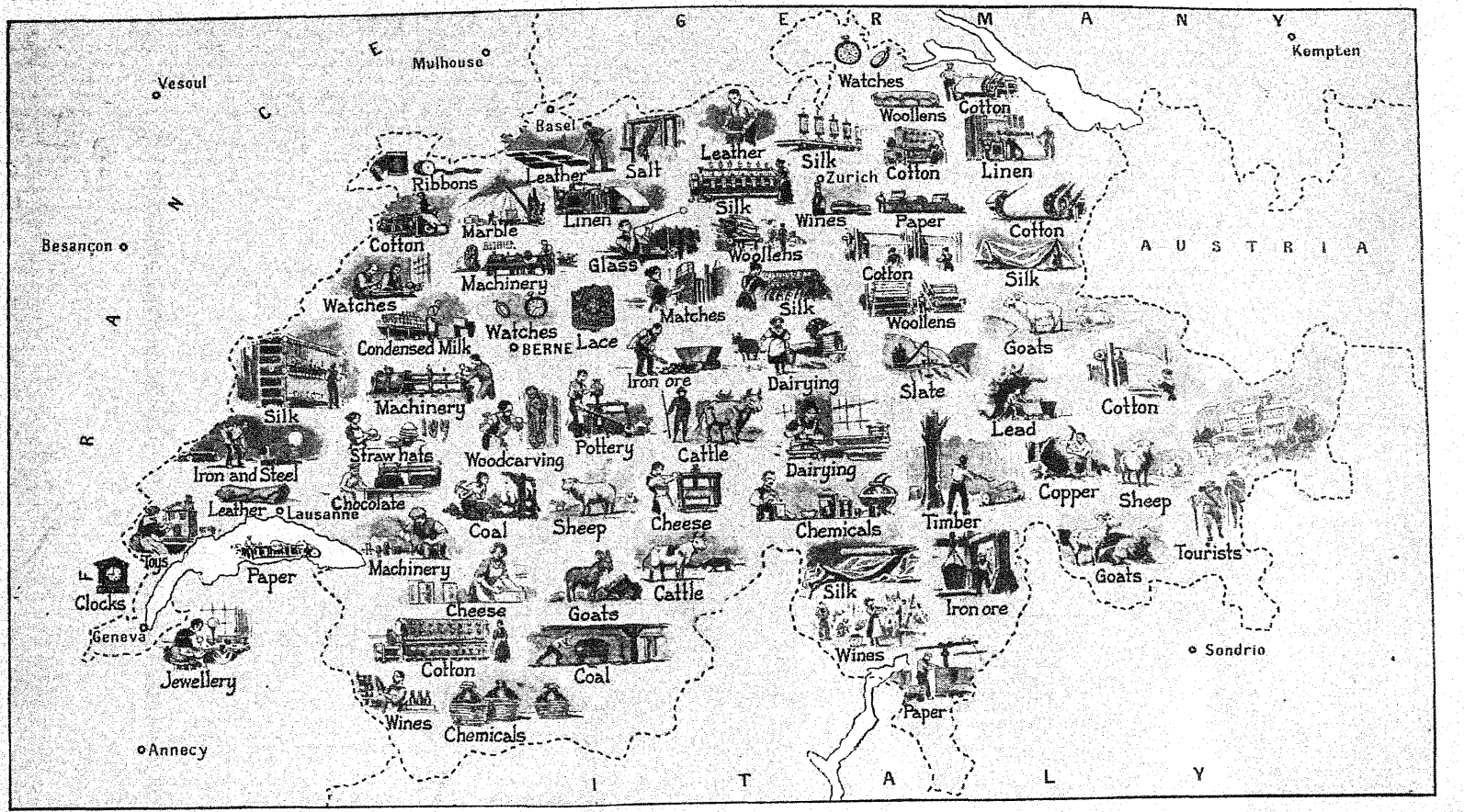
THE PHYSICAL FEATURES OF SWITZERLAND, SHOWN IN THIS MAP, ARE A RICH SOURCE OF KNOWLEDGE FOR STUDENTS OF THE EARTH'S PAST

PICTURE-MAP OF NOTABLE EVENTS IN THE HISTORY OF SWITZERLAND

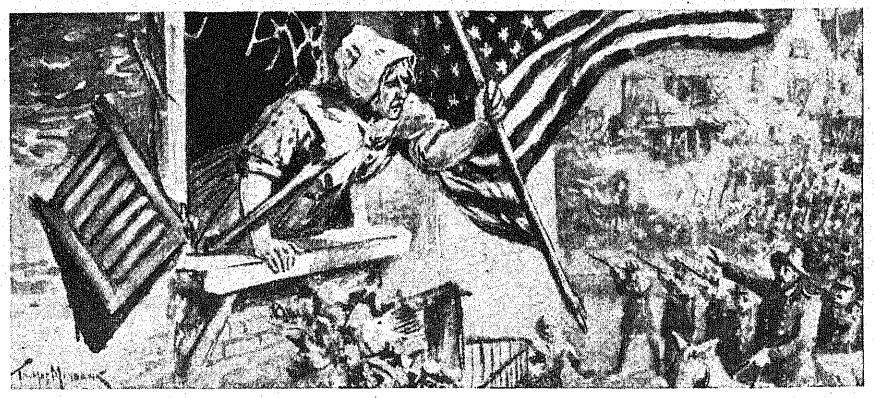


THE BOOK OF THE HISTORY OF SWITZERLAND IS FILLED WITH THRILLING PAGES OF HEROIC DEEDS. ON THIS MAP SOME OF THEM ARE PICTURED

THE INDUSTRIES THAT KEEP ALIVE THE ENERGY OF THE SWISS PEOPLE



THE SWISS HAVE HARNESSED THE NATURAL POWER OF THEIR MOUNTAINS AND VALLEYS AND WATERFALLS TO VARIOUS TRADES AND MANUFACTURES



BARBARA FRIETCHIE

John G. Whittier, the famous Quaker poet of America, who loved to sing of the quiet things of life, could tune his note to the heroic with no uncertain strain, as we find in this inspiring poem. It tells a story of the Civil War in America, when the Southern States fought against the North. Lee and Stonewall Jackson were Southern leaders. Lee's soldiers had defeated the troops of General McClellan at Fredericksburg, which the poet calls Frederick Town, and the flags of the United States, from which the Southerners had broken away, had all been hauled down except one when Stonewall Jackson marched into the town. How old Barbara Frietchie, with grim determination, kept this flag of freedom flying, and how the rebel leader showed his respect for her, are told with dramatic vigour by the poet.

UP from the meadows rich with corn,
Clear in the cool September morn,
The clustered spires of Frederick stand,
Green-walled by the hills of Maryland.
Round about them orchards sweep,
Apple and peach tree fruited deep,
Fair as the garden of the Lord
To the eyes of the famished rebel horde
On that pleasant morn of the early fall
When Lee marched over the mountain wall—
Over the mountains winding down,
Horse and foot, into Frederick Town.
Forty flags with their silver stars,
Forty flags with their crimson bars,
Flapped in the morning wind: the sun
Of noon looked down and saw not one.
Up rose old Barbara Frietchie then,
Bowed with her four score years and ten;
Bravest of all in Frederick Town,
She took up the flag the men hauled down;
In her attic window the staff she set,
To show that one heart was loyal yet.

UP the street came the rebel tread,
Stonewall Jackson riding ahead.
Under his slouched hat left and right
He glanced: the old flag met his sight.
"Halt!"—the dust-brown ranks stood fast.
"Fire!"—out blazed the rifle-blast;
It shivered the window, pane and sash,
It rent the banner with seam and gash.
Quick, as it fell from the broken staff,
Dame Barbara snatched the silken scarf;
She leaned far out on the window-sill
And shook it forth with a royal will.
"Shoot, if you must, this old grey head,
But spare your country's flag!" she said.
A shade of sadness, a blush of shame,
Over the face of the leader came;
The nobler nature within him stirred
To life at that woman's deed and word.
"Who touches a hair of yon grey head
Dies like a dog! March on!" he said.

ALL day long through Frederick Street
Sounded the tread of marching feet;
All day long that free flag tossed
Over the heads of the rebel host.
Ever its torn folds rose and fell
On the loyal winds that loved it well;
And through the hill-gaps sunset light
Shone over it with a warm good-night.
Barbara Frietchie's work is o'er,
And the rebel rides on his raids no more.
Honour to her! and let a tear
Fall, for her sake, on Stonewall's bier.
Over Barbara Frietchie's grave
Flag of Freedom and Union wave!
Peace and order and beauty draw
Round thy symbol of light and law;
And ever the stars above look down
On thy stars below in Frederick Town!

THE COUNTRY FAITH

"God made the country, man the town," said an eighteenth-century poet, and in these sweet lines the modern poet Norman Gale tells how the country naturally suggests thoughts of God and creates in men a trustful spirit.

HERE in the country's heart
Where the grass is green
Life is the same sweet life
As it e'er hath been.

Trust in a God still lives,
And the bell at morn
Floats with a thought of God
O'er the rising corn.

God comes down in the rain,
And the crop grows tall—
This is the country faith,
And the best of all!

THE PATRIOT'S PASSWORD

These lines by James Montgomery tell of the legendary deed of Arnold von Winkelried at the battle of Sempach, in 1386, when the Swiss defeated the Austrians. According to the story Winkelried seized an armful of the enemy's spears, and thrust them into his body to make a breach in the ranks.

MAKE way for liberty! he cried;
Made way for liberty, and died!

In arms the Austrian phalanx stood,
A living wall, a human wood!
A wall, where every conscious stone
Seemed to its kindred thousands grown;
A rampart all assaults to bear
Till time to dust their frames should wear;
A wood, like that enchanted grove
In which with fiends Rinaldo strove,
Where every silent tree possessed
A spirit prisoned in its breast,
Which the first stroke of coming strife
Would startle into hideous life;
So dense, so still, the Austrians stood,
A living wall, a human wood!
Impregnable their front appears,
All horrent with projected spears,
Whose polished points before them shine,
From flank to flank, one brilliant line,
Bright as the breakers' splendours run
Along the billows to the sun.

Opposed to these, a hovering band
Contended for their native land:
Peasants, whose new-found strength had broke
From manly necks the ignoble yoke,
And forged their fetters into swords,
On equal terms to fight their lords;
And what insurgent rage had gained
In many a mortal fray maintained;
Marshalled once more at Freedom's call,
They came to conquer or to fall
Where he who conquered, he who fell,
Was deemed a dead or living Tell!
Such virtue had that patriot breathed,
So to the soil his soul bequeathed,
That wheresoe'er his arrows flew
Heroes in his own likeness grew,
And warriors sprang from every sod
Which his awakening footstep trod,
And now the work of life and death
Hung on the passing of a breath;
The fire of conflict burnt within,
The battle trembled to begin;
Yet while the Austrians held their ground
Point for attack was nowhere found.
Where'er the impatient Switzers gazed
The unbroken line of lances blazed;
That line 'twere suicide to meet,
And perish at the tyrants' feet;
How could they rest within their graves
And leave their homes the haunts of slaves?
Would they not feel their children tread
With clanging chains above their head?

It must not be; this day, this hour,
Annihilates the oppressor's power;
All Switzerland is in the field,
She will not fly, she cannot yield—
She must not fall; her better fate
Here gives her an immortal date.
Few were the number she could boast,
But every freeman was a host,
And felt as though himself were he
On whose sole arm hung victory.

It did depend on *one* indeed;
Behold him—Arnold Winkelried!
There sounds not to the trump of fame
The echo of a nobler name.
Unmarked he stood amid the throng,
In rumination deep and long,
Till you might see, with sudden grace,
The very thought come o'er his face,
And by the motion of his form
Anticipate the bursting storm;
And by the uplifting of his brow
Tell where the bolt would strike and how.

But 'twas no sooner thought than done,
The field was in a moment won:
"Make way for Liberty!" he cried,
Then ran, with arms extended wide,
As if his dearest friend to clasp;
Ten spears he swept within his grasp.

"Make way for Liberty!" he cried;
Their keen points met from side to side;
He bowed amongst them like a tree,
And thus made way for Liberty.

Swift to the breach his comrades fly;
"Make way for Liberty!" they cry,

And through the Austrian phalanx dart
As rushed the spears through Arnold's heart;
While, instantaneous as his fall,
Rout, ruin, panic, scattered all;
An earthquake could not overthrow
A city with a surer blow.

Thus Switzerland again was free;
Thus death made way for liberty!

IT CAME UPON THE MIDNIGHT CLEAR

This inspiring poem, a general favourite among the poems sung by the English-speaking people, is by an American pastor, Edmund H. Sears. He did not live to see the Great War of Europe, but his instinct here is true, for the world even now is hastening on to the days of universal peace.

It came upon the midnight clear,
That glorious song of old,
From angels bending near the earth
To touch their harps of gold:
"Peace to the Earth, goodwill to men
From heaven's all-gracious King!"
The world in solemn stillness lay
To hear the angels sing.

Still through the cloven skies they come,
With peaceful wings unfurled;
And still their heavenly music floats
O'er all the weary world:
Above its sad and lowly plains
They bend on heavenly wing,
And ever o'er its Babel sounds
The blessed angels sing.

Yet with the woes of sin and strife
The world has suffered long;
Beneath the angel-strain have rolled
Two thousand years of wrong;
And man, at war with man, hears not
The love-song which they bring:
Oh! hush the noise, ye men of strife,
And hear the angels sing!

And ye, beneath life's crushing load
Whose forms are bending low;
Who toil along the climbing way
With painful steps and slow—
Look now! for glad and golden hours
Come swiftly on the wing;
Oh! rest beside the weary road,
And hear the angels sing!

For lo! the days are hastening on,
By prophet-bards foretold,
When with the ever-circling years
Comes round the age of gold;
When Peace shall over all the earth
Its ancient splendours fling,
And the whole world send back the song
Which now the angels sing!

THE DAYS THAT ARE NO MORE

The gift of Tennyson in pure song is well-nigh unsurpassed. All who with a full heart can feel a thousandfold more than they can express as they recall the happy and sacred past will feel the tender music of the following lines.

Tears, idle tears, I know not what they mean,
Tears from the depth of some divine despair
Rise in the heart, and gather to the eyes,
In looking on the happy autumn fields,
And thinking of the days that are no more.

Fresh as the first beam glittering on a sail,
That brings our friends up from the underworld,
Sad as the last which reddens over one
That sinks with all we love below the verge;
So sad, so fresh, the days that are no more.

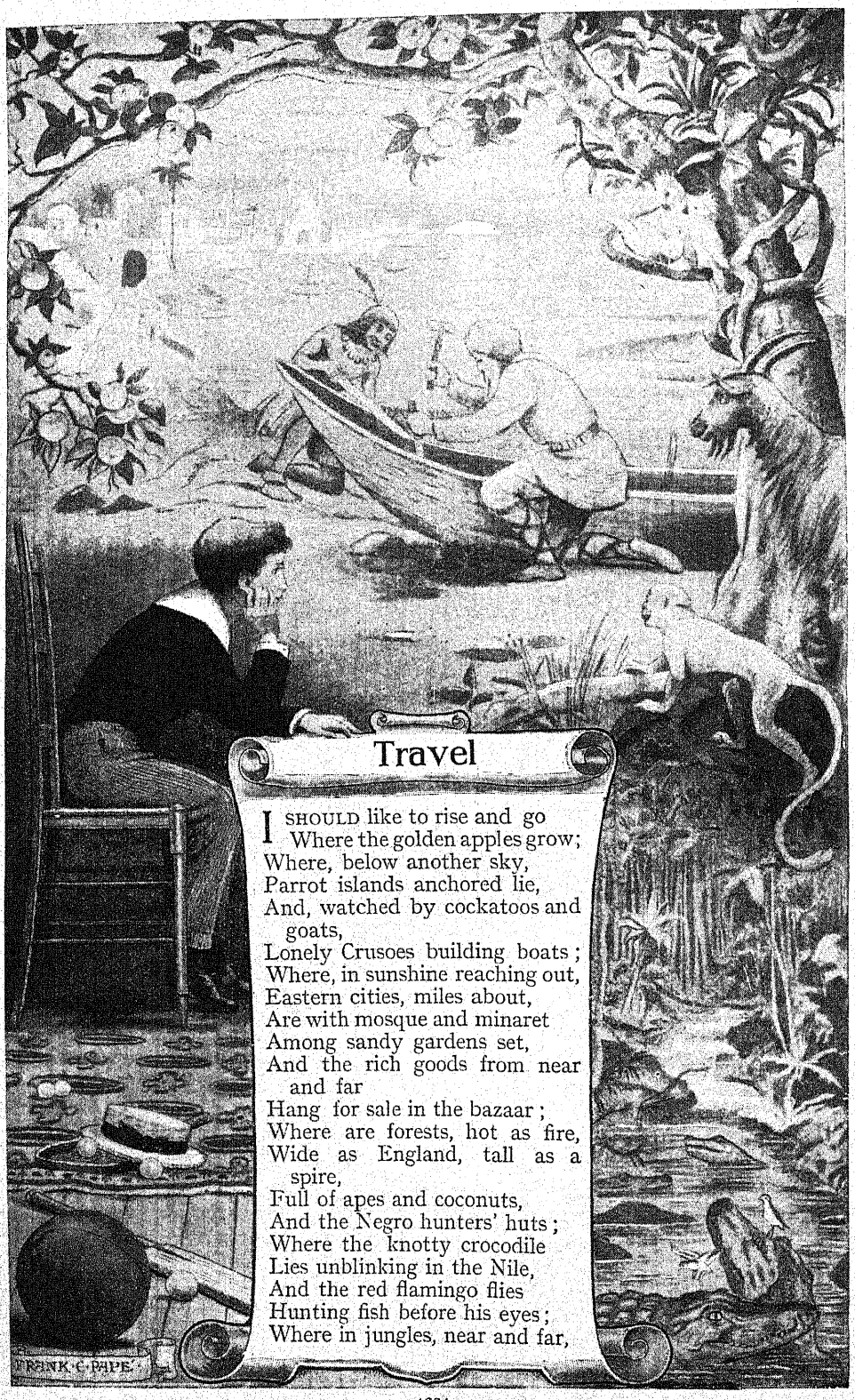
Ah, sad and strange as in dark summer dawns
The earliest pipe of half-awakened birds
To dying ears, when unto dying eyes
The casement slowly grows a glimmering square;
So sad, so strange, the days that are no more.

Dear as remembered kisses after death,
And sweet as those by hopeless fancy feigned
On lips that are for others; deep as love,
Deep as first love, and wild with all regret;
O Death in Life, the days that are no more.

THE END IS THE BEST OF ALL

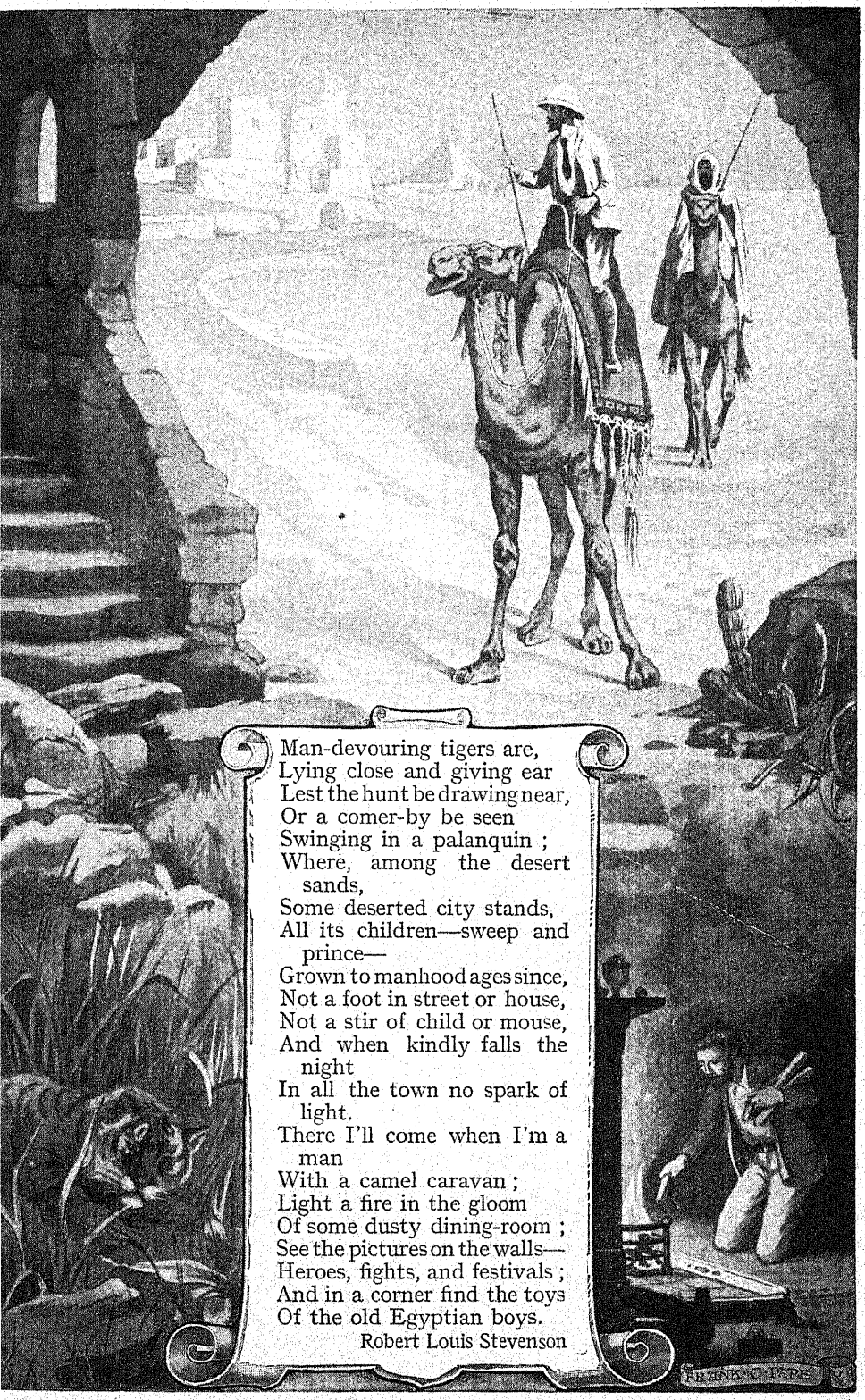
Here is the stoicism of a brave man who has lived his life boldly and enjoyed it, and is well content to leave it, though he has no exalted hopes. The lines are by W. E. Henley, who did not falter though he fell short in faith. It is a brave mood, but it is not the best.

Crosses and troubles a-many have proved me.
One or two women (God bless them!) have loved me.
I have worked and dreamed, and I've talked at will.
Of art and drink I have had my fill.
I've comforted here, and I've succoured there.
I've faced my foes, and I've backed my friends.
I've blundered, and sometimes made amends.
I have prayed for light, and I've known despair.
Now I look before, as I look behind,
Come storm, come shine, whatever befall,
With a grateful heart and a constant mind,
For the end I know is the best of all.



Travel

I SHOULD like to rise and go
Where the golden apples grow;
Where, below another sky,
Parrot islands anchored lie,
And, watched by cockatoos and goats,
Lonely Crusoes building boats;
Where, in sunshine reaching out,
Eastern cities, miles about,
Are with mosque and minaret
Among sandy gardens set,
And the rich goods from near and far
Hang for sale in the bazaar;
Where are forests, hot as fire,
Wide as England, tall as a spire,
Full of apes and coconuts,
And the Negro hunters' huts;
Where the knotty crocodile
Lies unblinking in the Nile,
And the red flamingo flies
Hunting fish before his eyes;
Where in jungles, near and far,



Man-devouring tigers are,
Lying close and giving ear
Lest the hunt be drawing near,
Or a comer-by be seen
Swinging in a palanquin ;
Where, among the desert sands,
Some deserted city stands,
All its children—sweep and prince—
Grown to manhood ages since,
Not a foot in street or house,
Not a stir of child or mouse,
And when kindly falls the night
In all the town no spark of light.
There I'll come when I'm a man
With a camel caravan ;
Light a fire in the gloom
Of some dusty dining-room ;
See the pictures on the walls—
Heroes, fights, and festivals ;
And in a corner find the toys
Of the old Egyptian boys.

Robert Louis Stevenson

MASSA'S IN DE COLD GROUND

The American Negro was conspicuous in the days of slavery for his loyalty to his master wherever he was treated with kindness. That feeling and the note of sentimental sadness which marks the race in certain moods are expressed in this famous lament, written by Stephen Collins Foster, who also composed the melodious wailing music to which it is sung. Foster died while the war of emancipation was in progress

ROUND de meadows am a-ringing
De darkeys' mournful song,
While de mocking-bird am singing
Happy as the day am long.
Where de ivy am a-creeping
O'er the grassy mound
Dere old massa am a-sleeping,
Sleeping in de cold, cold ground.

Down in de cornfield
Hear dat mournful sound:
All de darkeys am a-weeping—
Massa's in de cold, cold ground.

When de autumn leaves were falling,
When de days were cold,
'Twas hard to hear old massa calling
'Cayse he was so weak and old.
Now de orange tree am blooming
On de sandy shore,
Now de summer days am coming,
Massa neber calls no more.

Massa make de darkeys love him
'Cayse he was so kind;
Now dey sadly weep above him,
Mourning 'cayse he leave dem behind.
I cannot work before tomorrow,
'Cayse de tear-drop flow;
I try to drive away my sorrow
Pickin' on de old banjo.

Down in de cornfield
Hear dat mournful sound:
All de darkeys am a-weeping—
Massa's in de cold, cold ground.

THE TWO ARMIES

Oliver Wendell Holmes teaches us here an old and familiar lesson. It is, perhaps, a poetic exaggeration to say the motto of valour's army is "Our glory is to slay." It is easy, too, to contrast the ruthless work of the fighters and the honour so readily awarded them with the merciful and often unnoticed ministrations of the lovers of peace. But it is well that the poets who love the quiet ways of life should remind us of those who serve in the army of peace, as there are always too many ready to sing the praises of the fighters.

AS Life's unending column pours
Two marshalled hosts are seen,
Two armies on the trampled shores
That Death flows black between.

One marches to the drum-beat's roll,
The wide-mouthed clarion's bray,
And bears upon a crimson scroll
"Our glory is to slay."

One moves in silence by the stream,
With sad yet watchful eyes,
Calm as the patient planet's gleam
That walks the clouded skies.

Along its front no sabres shine,
No blood-red pennons wave;
Its banner bears the single line
"Our duty is to save."

For those no death-bed's lingering shade;
At Honour's trumpet-call,
With knitted brow and lifted blade,
In Glory's arms they fall.

For these no clashing falchions bright,
No stirring battle-cry;
The bloodless stabber calls by night—
Each answers "Here am I!"

For those the sculptor's laurelled bust,
The builder's marble piles,
The anthems pealing o'er their dust
Through long cathedral aisles.

For these the blossom-sprinkled turf
That floods the lonely graves
When Spring rolls in her sea-green surf
In flowery-foaming waves.

Two paths led upward from below,
And angels wait above,
Who count each burning life-drop's flow,
Each falling tear of Love.

Though from the hero's bleeding breast
Her pulses Freedom drew,
Though the white lilies in her crest
Sprang from that scarlet dew,

While Valour's haughty champions wait
Till all their scars are shown
Love walks unchallenged through the gate,
To sit beside the throne!

A HEART TO KEEP

Over those who trust us in love we should watch with unfailing care, and think of them as of a beautiful marble cathedral, reserved sacred to pure sweet thoughts. That is the idea expressed here, in smoothly chiselled lines, by Arthur O'Shaughnessy, a poet who died young in 1881

IF one should give me a heart to keep,
With love for the golden key,
The giver might live at ease or sleep;
It should ne'er know pain, be weary, or weep,
The heart watched over by me.

I would keep that heart as a temple fair,
No heathen should look therein;
Its chaste marmoreal beauty rare
I only should know, and to enter there
I must hold myself from sin.

THE FOUNTAIN

James Russell Lowell the writer of these happy lines, which express so well the feeling that comes to us in watching the play of a fountain on a summer day, was a famous American poet and humorist. He was born in 1819 and died in 1891

INTO the sunshine,
Full of the light,
Leaping and flashing
From morn till night!

Into the moonlight,
Whiter than snow,
Waving so flower-like
When the winds blow!

Into the starlight,
Rushing in spray,
Happy at midnight,
Happy by day!

Ever in motion,
Blithesome and cheery,
Still climbing heavenward,
Never aweary;

Glad of all weathers,
Still seeming best,
Upward or downward,
Motion thy rest;

Full of a nature
Nothing can tame,
Changed every moment,
Ever the same;

Ceaseless aspiring,
Ceaseless content,
Darkness or sunshine
Thy element;

Glorious fountain!
Let my heart be
Fresh, changeful, constant,
Upward like thee!

FATHER WILLIAM

Robert Southey in writing this poem sought to illustrate the blessings of living a sober, industrious, virtuous life. He makes Youth ask of Age the way to live, and this is the only wise course. We should profit by the experience of those who have travelled the road of life before us.

YOU are old, Father William, the young man cried,
The few locks that are left you are grey;
You are hale, Father William, a hearty old man;
Now tell me the reason, I pray.

In the days of my youth, Father William replied,
I remembered that youth would fly fast;
And abused not my health and my vigour at first
That I never might need them at last.

You are old, Father William, the young man cried,
And pleasures with youth pass away;
And yet you lament not the days that are gone;
Now tell me the reason, I pray

In the days of my youth, Father William replied,
I remembered that youth could not last;
I thought of the future, whatever I did,
That I never might grieve for the past.

You are old, Father William, the young man cried,
And life must be hastening away:
You are cheerful, and love to converse upon death:
Now tell me the reason, I pray.

I am cheerful, young man, Father William replied;
Let the cause thy attention engage:
In the days of my youth I remembered my God,
And He hath not forgotten my age!

TO THE SKYLARK

This is one of the many poems in which William Wordsworth describes with so much truth and loving observation the characteristics of the wild creatures of our land.

ETHEREAL minstrel! pilgrim of the sky!
Dost thou despise the earth where cares abound?
Or, while the wings aspire, are heart and eye
Both with thy nest upon the dewy ground?
Thy nest which thou canst drop into at will,
Those quivering wings composed, that music still!

To the last point of vision, and beyond,
Mount, daring warbler! that love-prompted strain,
'Twixt thee and thine a never-failing bond,
Thrills not the less the bosom of the plain;
Yet might'st thou seem, proud privilege! to sing
All independent of the leafy spring.

Leave to the nightingale her shady wood;
A privacy of glorious light is thine,
Whence thou dost pour upon the world a flood
Of harmony, with instinct more divine;
Type of the wise who soar, but never roam;
True to the kindred points of Heaven and home.

LITTLE VERSES FOR VERY LITTLE PEOPLE

THE COTTAGER TO HER INFANT

THE days are cold, the nights are long,
The north wind sings a doleful song;
Then hush again upon my breast;
All merry things are now at rest
Save thee, my pretty love!

The kitten sleeps upon the hearth;
The crickets long have ceased their mirth:
There's nothing stirring in the house
Save one wee, hungry, nibbling mouse;
Then why so busy thou?

Nay! start not at that sparkling light;
'Tis but the moon that shines so bright
On the window-pane bedropped with rain:
There, little darling, sleep again,
And wake when it is day!

Dorothy Wordsworth

THE TERRIBLE BALL

GIVE me your ear, good children all:
I'm going to set up a terrible ball—
A terrible ball that began to grow
From only the least little speck of snow.
And, to make the lesson pointed and plain,
I'll just remark that life, in the main,
Is, etcet'ra—you know; and I hope you'll be good
In future to show that you've understood.

Three lovely little artless boys,
All of them being mothers' joys,
One day decided, in innocent mirth,
To make a snowball as big as the earth.
What makes the story more touching still,
The big-eyed schoolhouse on the hill
Was in session, under the cross Miss Stookey,
And these little boys were playing hookey.
Hookey from Stookey, they worked with a will,
The ball grew bigger—and bigger still.

Then, like a pumpkin fair and round,
They kept it rolling on the ground—
Bigger, bigger, bigger, bigger,
Bigger, bigger, bigger, bigger!
The boys could hardly push it along
It steadily grew so stout and strong.

Now, this mammoth ball, that began as a pill,
Was made, you must know, on top of a hill;
This hill was so terribly steep and high
That even the coasters would pass it by;
And, saving a road by the cattle made,
It sloped right down, at a fearful grade,
To the meadow, where stood a cottage red
Where these little children were born and bred.

"Halloo!" they cried, "let's have some fun,
There's Stookey's pig, as sure as a gun!"
"Hooray! Hooray!" cried the children three,
Thus giving vent to their youthful glee.
When—what do you think?—this ungrateful pill
That they'd made so big on top of the hill,
With an air that said, "Now, I think I've got 'em!"
Resolved to roll all the way to the bottom.

The ball was swift, the ball was big,
Alas for Stookey's innocent pig!
Alas for lovers who walked that way;
They ne'er in their lives forgot the day!
Alas for the learned Professor Gath,
Who happened to stroll in the snowball's path!
And alas, alas, for those children three,
Who shouted and cheered in their pretty glee!

Rolling, growing, demolishing all,
On and on went the terrible ball;
It left the cattle down on their knees,
It crushed the fences and bent the trees;
Even the haystacks went ker-flop,
It wouldn't turn, and it wouldn't stop,
But still rolled on in steady motion,
Making a bee-line for the ocean!

With laugh and shout and merry hoot
Those children followed in glad pursuit.
"Hooray! Hooray!" they cried again,
And then gave chase with might and main;
They gave it chase with main and might,
But the terrible ball rolled out of sight.

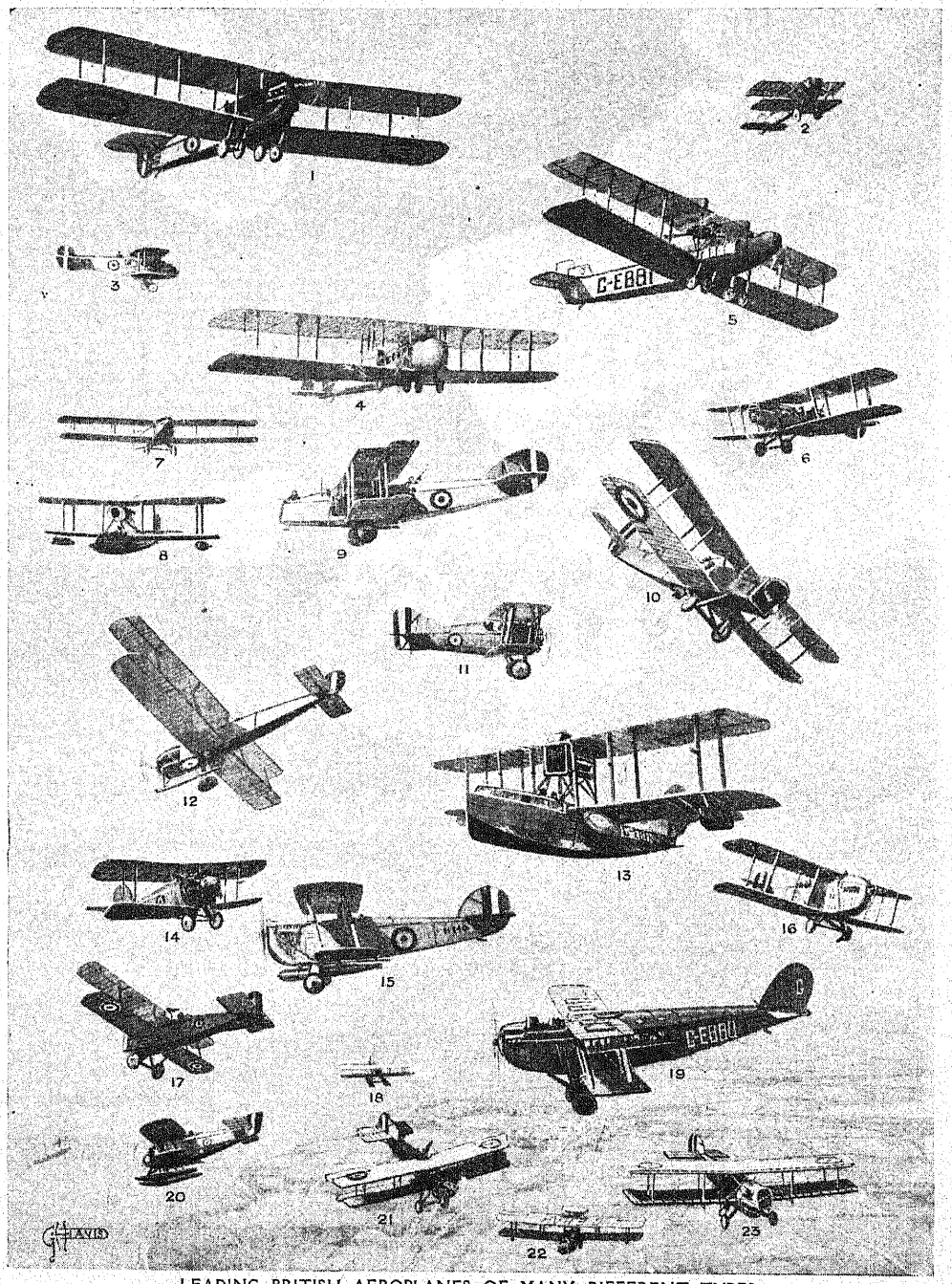
And now comes the saddest part of all.
(Oh, that cruel, wicked, terrible ball!)
When at last the three little artless boys,
Tired of running and making a noise,
All resolved to go home to bed,
Where, oh! where was that cottage red?
Where, oh! where? As the terrible ball—
Never a home had those children small.
Gone, clean gone, with picket and paling,
And all their joy was turned to wailing!

MORAL

Hence it is, and so we see
Thus and so, it seems to me,
As I'm sure you'll all agree,
And ever after better be.

Mary Mapes Dodge

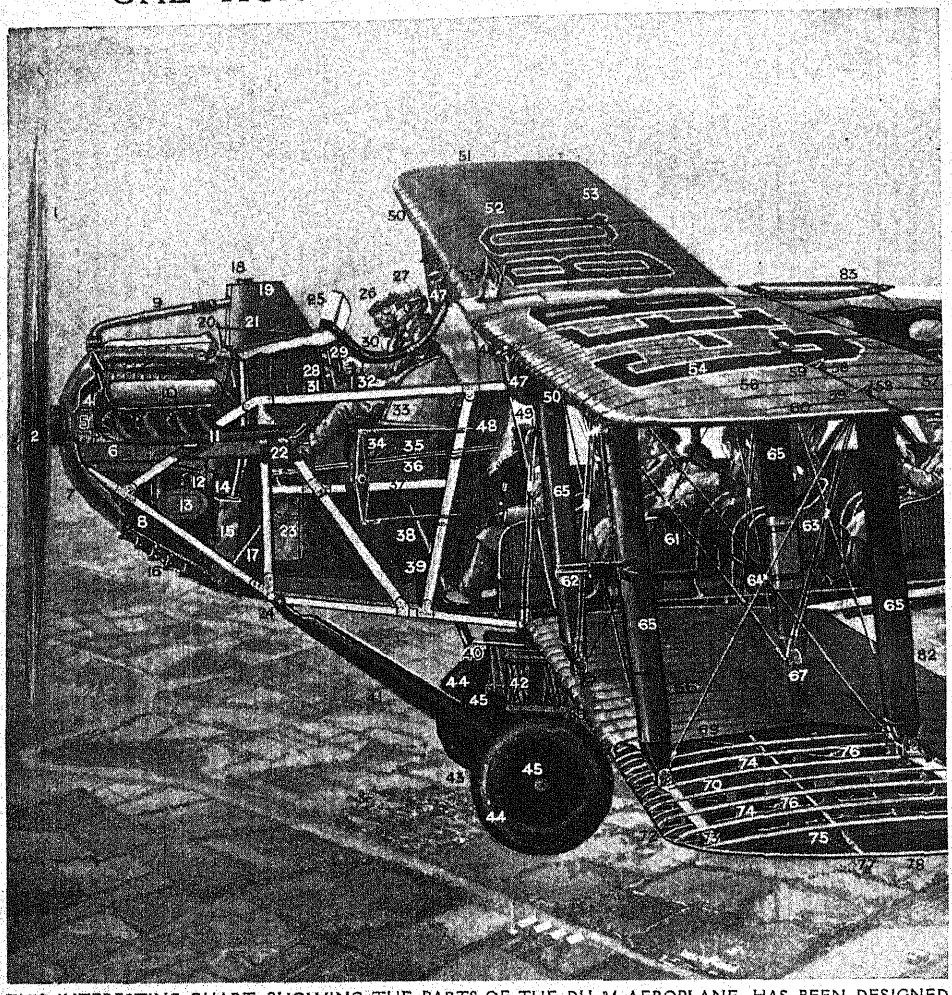
PICTURES OF THE AEROPLANE



LEADING BRITISH AEROPLANES OF MANY DIFFERENT TYPES

1. Avro Aldershot. 2. Gloucester Grebe. 3. Avro Bison. 4. Vickers Victoria. 5. Handley Page W8B. 6. Bristol Fighter. 7. Fairy Fawn. 8. Supermarine Sea Lion. 9. Boulton and Paul Bourges. 10. D.H. 9a. 11. Siddeley Siskin. 12. Avro 504K. 13. Supermarine Sea Eagle. 14. Parnall Plover. 15. Blackburn Dart. 16. Blackburn Blackburn. 17. S.E. 5a. 18. Fairey III D Seaplane. 19. D.H. 38. 20. Fairey Flycatcher. 21. Westland Weasel. 22. Vickers Viking. 23. Handley Page Hanley

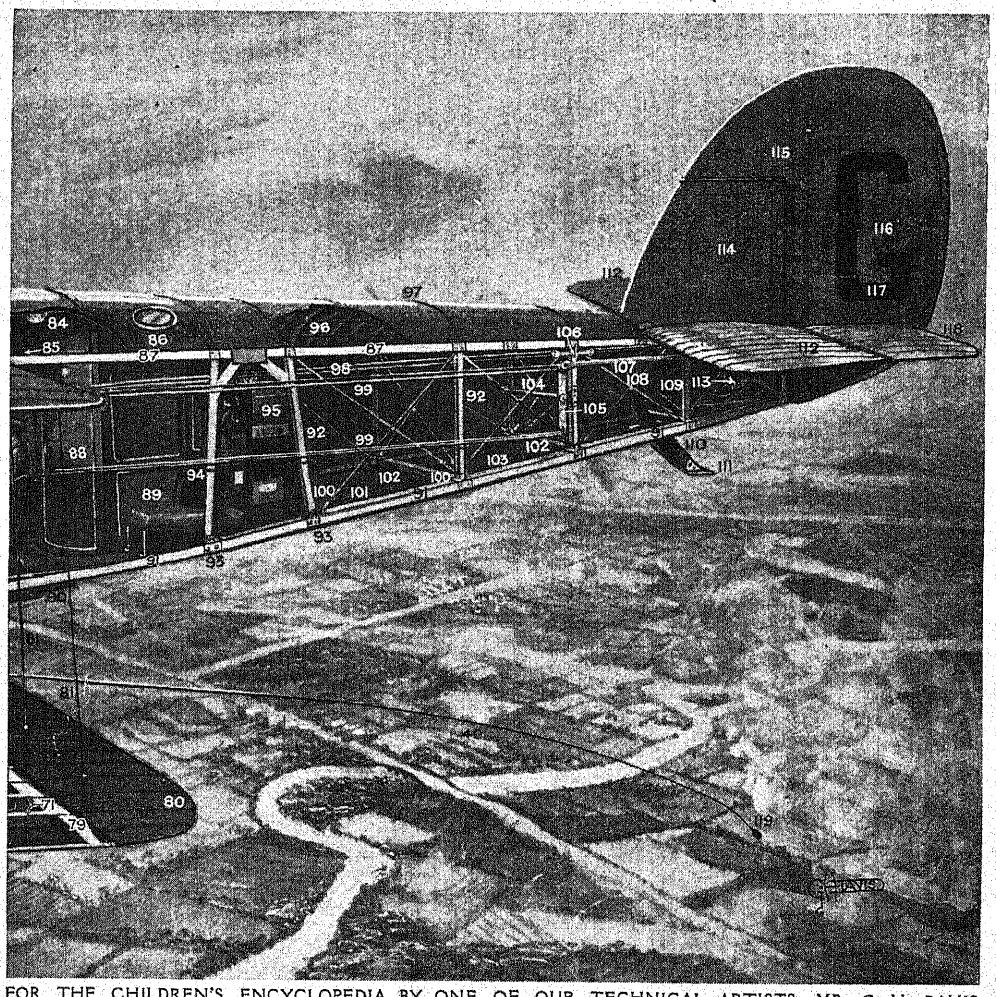
ONE HUNDRED AND NINETEEN PARTS



THIS INTERESTING CHART, SHOWING THE PARTS OF THE DH 34 AEROPLANE, HAS BEEN DESIGNED

1. Airscrew, or propeller
2. Propeller boss
3. Boss plate
4. Airscrew reduction gear casing
5. Carburetter
6. Engine bearer
7. Nose
8. Leading fuselage strut
9. Waterpipe between engine and header tank
10. 12-Cylinder 450 horse-power Napier Lion engine
11. Exhaust pipe from engine
12. Oil tank stay
13. Oil tank
14. Waterpipe between header tank and radiator
15. Radiator
16. Radiator shutters
17. Radiator shutter control rod
18. Header tank filler
19. Streamlined water header tank
20. Valve operating lever
21. Valve lever control rod
22. Rudder bar
23. Wireless receiver and transmitter
24. Under-carriage strut bolt
25. Triplex unsplinterable glass wind screen
26. Reserve pilot
27. Pilot
28. Instrument board
29. Aerial reel
30. Pilot's cockpit
31. Wireless remote control
32. Control lever, or joy-stick
33. Pilot's seat
34. Elevator control lever
35. Logbook and spares box
36. Control wires to vertical rudder
37. Cockpit floor strut
38. Wireless aerial tube
39. Collision bulkhead
40. Aerial
41. Front undercarriage struts
42. Rubber shock-absorbers with oil dampers
43. Landing wheels
44. Cord aero tyres
45. Wheel discs
46. Petrol tank fillers
47. Petrol tanks
48. Saloon curtains
49. Starboard windows
50. Leading edge of upper plane
51. Starboard upper wing tip
52. Starboard upper plane
53. Starboard upper aileron
54. Registration letters of machine
55. Inlet for heating and ventilating system of cabin
56. Upper port plane
57. Upper port aileron
58. Aileron pylons
59. Aileron control wires
60. Upper port wing tip
61. Saloon containing wicker armchairs for eight passengers
62. Pilot tube of air-speed indicator

OF A BIG COMMERCIAL AEROPLANE

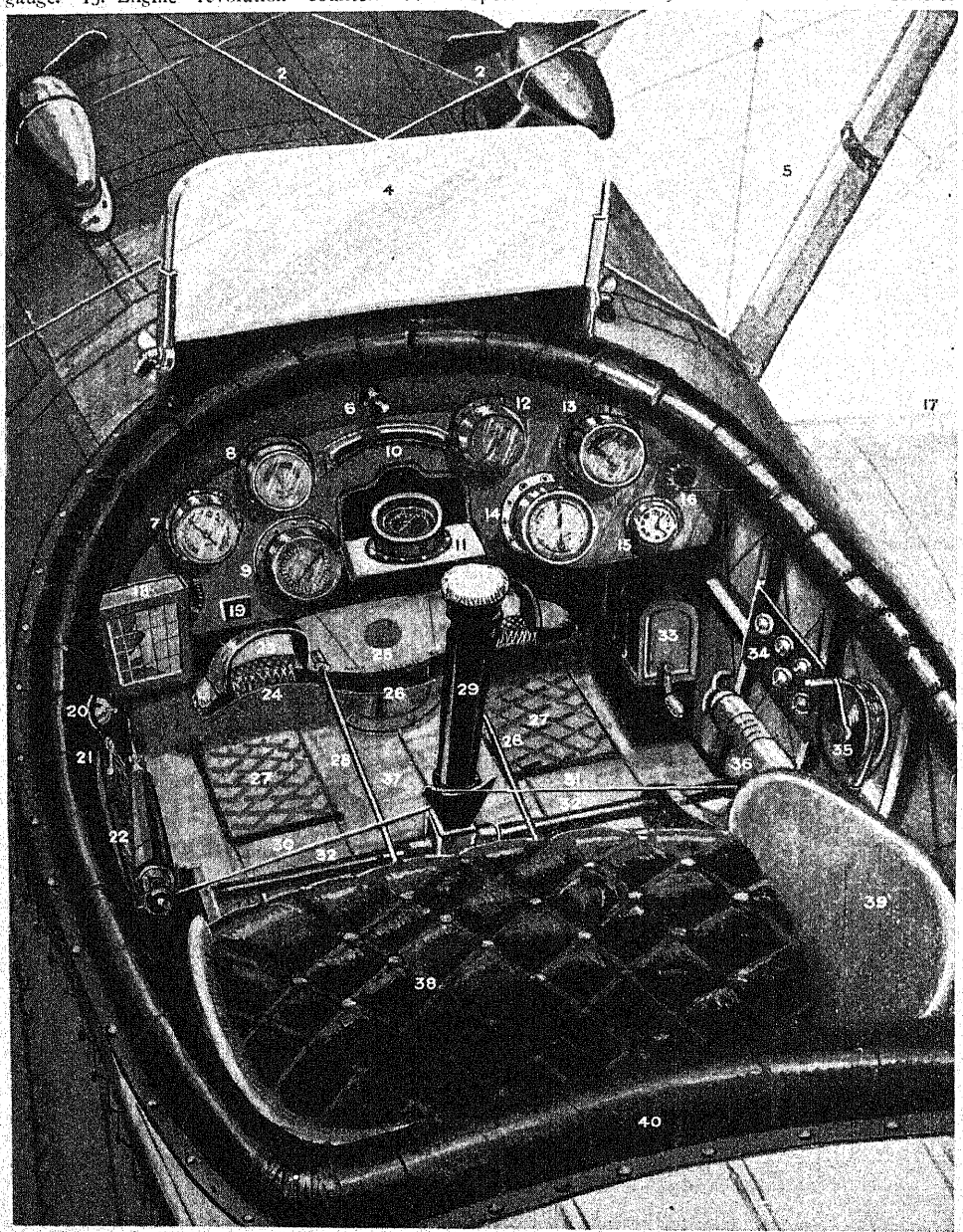


FOR THE CHILDREN'S ENCYCLOPEDIA BY ONE OF OUR TECHNICAL ARTISTS, MR. G. H. DAVIS

63. Twin flying wires
64. Incidence wires
65. Streamlined hollow interplane struts
66. Port lower plane
67. Strut sockets
68. Leading edge of lower plane
69. Fabric wing covering treated with waterproof dope
70. Solid compression rib
71. Rib flange
72. Former ribs
73. Main front spar
74. Ordinary ribs with holes in the web to make them lighter
75. Rib web without lightening holes
76. Internal bracing wires
77. Distance piece to prevent ribs rolling
78. Lower port wing tip
79. Main rear spar
80. Lower port aileron
81. Aileron gap wires
82. Trailing edge of lower plane
83. Emergency exit hatch
84. Interior electric light
85. Life-belt in case
86. Roof light
87. Upper port longeron
88. Lavatory
89. Spare or attendant's seat
90. Folding accommodation ladder
91. Port lower longeron
92. Fuselage side struts
93. Duralumin longeron strut sockets
94. Bulkhead
95. Luggage, goods, and mails
96. Fairing ribs
97. Fairing
98. Rudder control cables
99. Twin control cables to elevators, both being controlled from port side
100. Wire turnbuckle
101. Plywood covering of fuselage
102. Fuselage bottom cross struts
103. Fuselage bottom bracing wires
104. Elevator control cross shaft
105. Port elevator control lever
106. Rudder cable guide rod
107. Elevator control rod
108. Fuselage side bracing wires
109. Rubber shock absorbers for tail skid
110. Tail skid
111. Tail skid steel shoe
112. Tail plane
113. Tail plane trimming gear
114. Fin
115. Balanced portion of rudder
116. Balanced rudder
117. Identification letter showing country of origin
118. Port elevator
119. Aerial plummet

WHAT THE PILOT'S COCKPIT IS LIKE

The pilot has not only his controls to look after, but in his cockpit there are many instruments of use for navigation and other purposes that continually need his close attention. The numbered parts shown here are: 1. Wind-driven dynamo. 2. Centre section bracing wires. 3. Wind-driven petrol pressure pump. 4. Unsplinterable glass wind screen. 5. Centre section strut. 6. Light for instrument board. 7. Radiator thermometer. 8. Air pressure gauge. 9. Altimeter. 10. Inclinometer. 11. Compass. 12. Oil pressure gauge. 13. Engine revolution counter. 14. Air-speed indicator. 15. Clock. 16. Petrol Control.



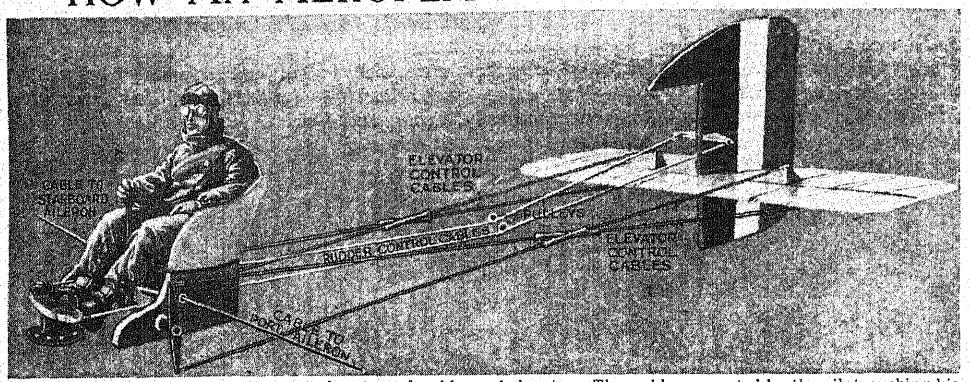
17. Plane. 18. Map in case. 19. Plug. 20. Engine switch. 21. Throttle control. 22. Hand pressure pump to petrol tank. 23. Toe clip. 24. Foot plate. 25. Rudder bar. 26. Rudder bar bearing. 27. Aluminium heel plates. 28. Rudder cables. 29. Control column, or joy-stick. 30. Port aileron control. 31. Starboard aileron control. 32. Elevator control bar. 33. Cockpit engine starter. 34. Light switches. 35. Wireless aerial drum. 36. Chemical fire extinguisher. 37. Floor of cockpit. 38 Pilot's padded seat. 39. Aluminium side of seat. 40. Leather padded rim.

HOW THE AIRMAN KEEPS HIMSELF WARM

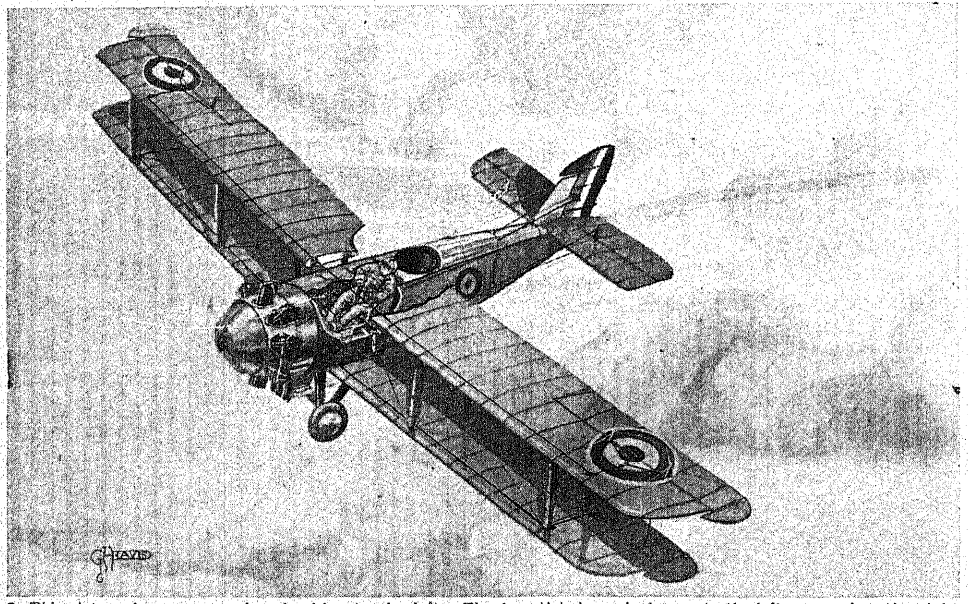
When flying in cold weather aviators wear a heavy suit consisting of an outer garment of leather, a fur lining, and a thick inner garment which is electrically heated. In this picture the numbered parts are: 1. Airscrew driving. 2. Electric generator which makes the electricity for heating the clothing of the aviator. 3. Unsplinterable glass goggles. 4. Fur-lined leather flying helmet. 5. Fur-lined mouth and throat piece. 6. Cables from generator. 7. Switch box for body, hands, and feet. 8. Junction box. 9. Battery. 10. Cable to clothing. 11. Fur-lined flying glove. 12. Main plug. 13. Dotted lines showing course of

electric cables that are concealed within the clothing for heating the body. 14. Flying clothes cut away to show outer coat of thick leather, lining of fur, and thick inner coat, which is heated by electric cables. 15. Electric heating cable in the thick inner coat. 16. Arm-warming cable. 17. Push-plug connecting glove to the arm-warming cable. 18. Inner glove of cotton material with heat applied to back of hand and fingers. 19. Dotted line showing course of leg-warming cable. 20. Push-plug connecting boot with the leg cable. 21. Electrically heated sole. 22. Fur-lined outer boot.

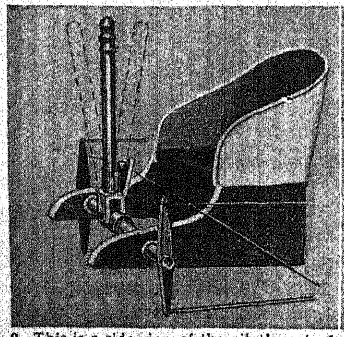
HOW AN AEROPLANE IS CONTROLLED



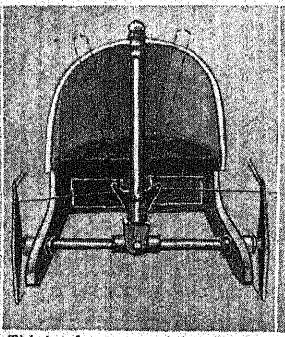
1. This picture-diagram shows the control system of rudder and elevator. The rudder, operated by the pilot pushing his left foot forward on the rudder bar, is turned to the left for making the left-hand turn seen in the picture below. The elevator, seen here in its normal position, is operated by pushing the joy-stick forward for a descent or backward for rising.



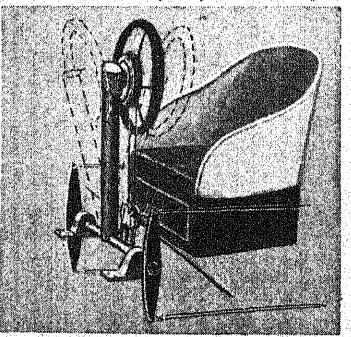
2. This picture shows an aeroplane banking to the left. The joy-stick is pushed over to the left, so causing the right ailerons to be lowered and thus increasing the lift of the right wings; at the same time the left ailerons are raised, thus decreasing the lifting power of the left wings. The aileron control cables are shown, though actually they are out of sight.



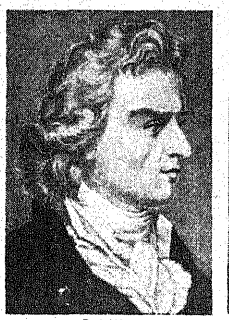
3. This is a side view of the pilot's seat and the joy-stick. The dotted lines in front show the position of the joy-stick when the aeroplane is to descend, and the dotted lines behind show its position when the aeroplane is to rise



4. This is a front view of the pilot's seat. When the pilot wishes to bank to the left he pushes the joy-stick over to his left and if he wishes to bank to the right he pushes the joy-stick over to his right, as indicated by the dotted lines



5. This shows the wheel method of control, in which the control column moves only backward and forward for rising and diving, the wheel being turned to right or left, as in a motor car, for making banked turns.


Schiller

Lessing

Heine

Goethe

THE LITERATURE OF GERMANY

WHEN we use such phrases as spick and span, bed and board, wind and weather, weal and woe, hearth and home, we are in touch with ancestors of ours who lived in the dark forests of Germany long before the birth of Jesus.

Notice in each of those phrases that the two coupled words begin with the same letter. We do not say that So-and-so looked spick and neat; or spick and clean, but that he looked spick and span. "Spick and span" sounds more easily in our ears than "spick and clean," it runs with a certain pleasant quickness; it seems to say exactly what we mean, although few of us know the exact meaning of *span*.

In this easy way spoke our earliest ancestors. They used words beginning with the same letter in their poetry and in their household talk. One of their earliest poems ran in this fashion:

Woe now, Wielder above, Woe-Weird cometh;
I have Wandered Summers and Winters Sixty abroad,
And ever have Found me where Fighters Fore-gathered,
Yet Before no Burg did Bane Befall.

This we call Alliteration. It is found in William Langland's old English poem, Piers Plowman,

Her robe was full rich of red scarlet engrained,
With ribands of red gold and of rich stones.

Chaucer used it; Spenser is full of it; we find lines in Byron and Tennyson, indeed in nearly all poets, which make use of "apt alliteration's artful aid," while all of us are familiar with it in nursery rhymes, such as *Peter Piper picked a peck of pickled pepper-corns*.

In poetry there is also another link with the most distant past of our race. How do we get the four beats which we find in the commonest of all our measures? We get them from the Aryan priests of ancient days who took four steps to the altar of sacrifice and four steps backward, or four to the right and four to the left. While they thus moved in this mystic rite, the musicians played and the worshippers sang, and the music beat time to the steps of the priests, and the singers sang to the music. If Tennyson's In Memoriam had been chanted in those remote ages it would have sounded like this:

Strong Son of God,
Immortal Love;
Whom we that have
Not seen Thy Face
By Faith, and Faith
Alone Embrace;
Believing where
We cannot prove . . .

Thus we learn to see how many things that are perfectly familiar to us in this age of aeroplanes and wireless stretch far back to ages so remote in human history that to think of them is to feel that the Roman Empire was an affair of only the

other day. And their interest for us is tremendous, one of the most romantic interests that can occupy our minds, for in thus going back to the thoughts and ideas of our ancestors, we feel ourselves linked up with the mighty march of evolution, heirs of a marvellous past, and trustees for a future which must surely fulfil all the dreams of the human soul.

German literature has this special interest for us more than any other in the world. Its beginnings are our beginnings. Its earliest ideas are the fountain of our ideas. In our minds is the heritage of men who overthrew the legions of Rome and established a nobler and grander civilisation on the shores of the North Sea. If we can discover how these men thought about Nature and about themselves we shall understand some of the reasons for those thoughts in our own minds which are stronger than ice and as fierce as fire.

THE CIVILISED PEOPLE WHO MARCHED INTO EUROPE FROM THE EAST

The Germans belonged to the Aryan race. Before they migrated from the East and marched into Europe they were already civilised. They were herdsmen, and understood some of the arts of agriculture. It would seem that they were gentle and even sentimental. Their religion was faith in gods, who were well-disposed towards men, and in giants, who were opposed to men. When they heard thunder they trembled and called it the battle-cry in the war of gods and giants. As for Nature, everything was either male or female, even things without life. The sky and the Sun were male ; the Moon and the Earth were female. Later, when climate and clashes with the Celts had made them a warlike people, they exalted the idea of woman and worshipped a goddess named Nerthus. Even when they were of all peoples on Earth the most fierce and terrible, the wife of the god of Thunder was the goddess of Peace.

They believed, says Scherer, speaking of this old mythology, that after the last dread struggle between gods and giants, after the great conflagration in which the Sun will be blackened and the Earth disappear, the souls of the faithful will enter an eternal realm of peace. " Then the earth, green and beautiful, will rise again from the sea, and corn will spring up unsown ; all evil will disappear, and sinless gods will reign for ever."

This great critic is convinced that there was a time in the religion of our ancestors when love of beauty and reverence for woman predominated. It was then that the Aryan sun-god was changed into a goddess, and later received the name, *She who must fight her way*.

THE NATIONAL HERO WHO MADE WAR FOR THE SAKE OF PEACE

Later, but still early in German history, we come to the supreme national hero Siegfried, whose name means that he makes war only for the sake of peace :

He is the ideal of a hero and a perfect man ; the gods and the good spirits are favourable to him. The clever dwarfs educate him ; he learns the trade of a smith, and a godlike woman initiates him in sacred wisdom. He is early surrounded by the glory of wonderful deeds ; riches and power are his portion ; love beautifies his life ; but he falls by the treachery of a powerful enemy, and his early death raises him to higher glory.

This Siegfried is the very soul of German literature. The first Siegfried of legend is all but lost to us ; no one can be quite certain about him, and as he comes down the ages, every glee-singer, every poet, gives him the colour of that particular age, so that he is never the same, and yet always the ideal German, the hero of the German imagination. We shall see that he and his companion Parzival were laughed out of existence in the seventeenth century by a character named Simplicissimus, and revived again by the genius of Wagner in the nineteenth century. To understand Siegfried is to understand the German character both at its worst and at its best.

THE OLD POEM UNLIKE ANYTHING ELSE IN THE WORLD'S LITERATURE

It was in the twelfth century that an unknown Austrian poet made this legendary Siegfried the hero of *The Lay of the Nibelungs*, or, as we now call it, the *Nibelungenlied*. It is a poem by itself, unlike anything else in the literature of the world. It preserves something of the nature-worship of the old Germans, something of the pagan beauty which inspired the earliest songs of Siegfried ; but it is expressed in the language of Chivalry and is given a gloss of Christianity to suit the temper of the Middle Ages.

The truth is that the Germans were never really converted to Christianity, but adopted it at the order of their chiefs, They remained pagans at heart for many centuries. Their real literature is thus

entirely lost to us, for the monks were the only people who could write, and these monks were always composing works to make those stubborn Germans forget their gods and goddesses, their demons and dwarfs, their worship of Nature.

A REMARKABLE THING THE ROMANS NEVER KNEW ABOUT THEIR EMPIRE

We can guess what their literature was like by the fact that there is no German Jubilate to celebrate the overthrow of Rome, but only old folk-songs telling of the brave deeds of individual men. The central feature of German character was admiration for the heroic in man.

Remarkable is it for us to think that the Romans never knew that their mighty empire had been destroyed by their own blood-relations. They regarded the Germans as frightful barbarians belonging to an altogether different race; they never knew that these barbarians were, like themselves, of gentle Aryan descent, and, like themselves, had learned in the sterner climate of Europe to admire the heroic in man and to believe in courage as a supreme virtue.

The journalists of Germany were glee-singers who wandered up and down the country singing songs of heroic men, and keeping alive in the German heart its love of Siegfried and its hope of peace. The most famous of the Minnesingers, or glee-singers, was Walther von der Vogelweide, the master lyric poet of Germany for several centuries.

As time went on, and the crusades coloured the whole mind of Europe with the magic and wonder of the East, these songs became monotonously chivalric and tiresomely incredible, till the glee-men turned to love for a new subject, and composed such love-sick songs that another reaction came, for the love-songs became coarse and base. Then the noblemen kicked these wandering minstrels out of their courts, and revived a scholarly song of romantic love which reigned over German literature till the stormy days of Martin Luther.

BRIGHT SPOTS IN THE DULL LITERATURE OF THE REFORMATION

With the Reformation literature became almost exclusively religious, and a very dull literature it was; but there were two splendours of that time, Luther's translation of the Bible into German and some magnificent German hymns.

Let us see how the Reformation influenced the literature of those buffeted and stalwart German peoples who fought for religious freedom in the midst of a continent bitterly hostile to their genius.

For years German literature took a moral tone. It was a literature of building-up. The Roman Church, like the Roman Empire, was broken, and a new civilisation had to take its place. All the best minds in Germany set themselves to the difficult task of giving men higher ideals, a sterner code of conduct, a more unflinching spirit of realism. Biblical plays became popular. Terrible satires against the priesthood were gradually supplanted by Scriptural dramas. There were twenty-four versions of the story of the Prodigal Son. Hans Sachs, a shoemaker, became a principal playwright, and the great master-singer of his time, leaving the Bible to take care of itself, and giving to drama and song a moral note not unlike that of Bunyan, and a gentle realism not unlike that of Chaucer. He was and is a great figure in the history of German literature.

THE DULL BOOK OF A LUTHERAN PASTOR WHICH INSPIRED THE IMMORTAL FAUST

But the real note of religion was sounded at this time by the German mystics, both Protestant and Catholic, who made a tender and beautiful attempt to detach the mind of man from earthly illusion and woo it into the region of meditation and spiritual desire. Greatest of these, perhaps, was Jacob Böhme, whose works are still read in many languages.

In 1587 a Lutheran pastor produced Doctor Faust. This famous book was simply a collection of tales about a man who had died some fifty years before, and was written solely to warn people about magic. It is a moral book, very dull and stupid, but it was destined one day to inspire a supreme genius with an idea which has now become the property of the human race.

It is a sad thought that Germany, the home of the Reformation, should have had no share in the glorious awakening (the Renaissance) which flourished in almost every other country. War had so devastated her land that there was no youth in her poetry. A Silesian named Martin Opitz strove to create enthusiasm for the German language, and gathered about him a number of faithful disciples; but their poetry and prose lacked altogether the spirit of immortality. Paul

Gerhardt alone stands out as a singer of power and originality, and he was a hymn-writer.

But presently a book, of which the author was not known for a hundred and fifty years, awoke Germany to a new feeling for literature. It was called The Adventurous Simplicissimus, and, unlike all romantic stories of knights and heroes, it tells the tale of a vagabond. " Instead of pages, lackeys, and hostlers," says Simplicissimus, " my sire had sheep, goats, and pigs, each dressed elegantly in his own natural livery ; and they often waited upon me in the chase until I drove them home."

THE STORY OF A STIRRING STRUGGLE BETWEEN GOOD AND EVIL

The boy runs away and becomes a soldier; he commits all sorts of crimes, but is always hankering after something better. The book is the story of a soul that cannot make up its mind to be good or bad. The author turned out to be a man named Grimmelshausen.

From Simplicissimus we pass to Frederick, called the Great, and the first literary figures we encounter under the amazing reign of that Prussian king who despised German literature are those of Klopstock and Wieland. Klopstock, who lived from 1724 to 1803, decided to provide Germany with a Milton, and sat down to write The Messiah. He failed in his ambition, but he did free the German soul from the pedantry which had for so long reigned over its literature. Wieland, living from 1733 to 1813, struck a blow at the mystery with which Klopstock sought to invest the poet, and contributed to a greater freedom in German literature. He began by being a poet of Christianity, but rather changed his tone and gave great offence to his former admirers by the freedom with which he wrote of life. His chief service was to win German attention from translations to their own literature, and his name, for this reason, will always hold a great place in the history of his people.

LESSING AS THE ENEMY OF DARKNESS AND THE FIGHTER FOR NOBLE ENDS

But a greater man was in the world. Gotthold Ephraim Lessing is " the first German example of a man of letters in the grand style." He lived from 1729 to 1781, and he was, says Professor J. G. Robertson, an inveterate enemy of intellectual darkness, a champion of freedom of thought, a great fighter for noble ends. He had discovered at the university that " books might make him learned, but could never make him a man."

He threw himself into social life in order to become a man. From riding and fencing he passed first to journalism, and then to the theatre, and in the theatre conceived a passion to be a dramatist. He read voraciously and studied Greek, Latin, Italian, Spanish, French, and English. He could not easily form any fixed faith in his mind, for he always wanted " to fight the opposite side." But his ideas about art were sound, and in his great work Laocoon he set all Germany thinking in a new way about the Greeks. Goethe said afterwards that the book was like a lightning-flash in his soul, and that Lessing's thought threw away all previous criticism, " like a worn-out coat."

With Lessing came the teacher and preacher Johann Herder, who lived from 1744 to 1803. Herder attacked Lessing here and there, and first proclaimed to the German mind that it was grotesque to judge so gigantic a genius as Shakespeare by the fussy little rules of French tragedy.

THE WRONGS THAT WERE FORGOTTEN IN THE GLORY OF THE RIGHT

He compares Shakespeare's plays to a surging sea, and suggests that passion is the utterance of genius. He reminds us of Carlyle. All the people about him were talking of Light, and he shouts out that men cannot live on light. Repose and luxury, he says, are the enemies of a great destiny. The sneer of Voltaire wears itself off the face of mankind. He looks back to the Middle Ages and cries out: " Give us back your reverence and superstition, your darkness and ignorance, your disorder and rudeness of manners ; and take in return our light and our unbelief, our nerveless coldness and refinement, and our human wretchedness."

He was right and wrong, this lovable Herder, who had discussed philosophy with Kant, but his right triumphed over his wrong, and when Goethe came, heir of all the ages, one of the most singular souls that ever breathed the air of this perplexing planet, Herder's wrong was entirely forgotten in the glory which Goethe threw on his right.

It is difficult in a paragraph or two even to hint at the marvellous life of Johann Wolfgang Goethe. He lived from 1749 to 1832. He was almost everything a man can be. By disposition as variable and uncertain as our English climate, he made

himself a great poet, a great dramatist, a great novelist, and a man of science. He was also something of a statesman and a courtier, and yet was a lover of simple people and a collector of folk-tunes. At one moment he was so sentimental that the tears ran down his cheeks; at the next, he was a hardened cynic, laughing at all emotion, and particularly his own. His sins were many; his religion was deep, earnest, and noble.

He said of a poet who might have been a great man that he failed "to tame himself." His own life was a magnificent effort in that direction. Born of well-off and cultured parents, living in an atmosphere of refinement and goodness, catching notions of dandyism from an occupation of his town by French troops, Goethe learned from Herder that the wild and the passionate are the true field of genius, and he flung himself into the ancient northern legends (the Sagas) with all the force of his highly emotional nature.

THE REMARKABLE CONTRASTS IN THE GREAT WORKS OF GOETHE

He passed through this period of Storm and Stress to learn also from Herder the nobler lesson that life is a "training of mankind for humanity." At one moment we find him bringing wild charges against civilisation, and declaiming with wonderful power about the satisfactions of Nature, borrowing from Rousseau a philosophy which deceives many but which has never been able to work; and at another moment we find him settling down like a deep ocean after an angry storm to sound the grander note of inward peace.

Some of his earlier books are to many of us so foolish and grotesque in their sentimentalism that they make us laugh. It is difficult to believe that any rational mind could read The Sorrows of Werther without smiles; yet Goethe grew out of this foolishness, as he grew out of foppishness and dandyism, and grew into a wisdom as high as Plato's and a seriousness as manly as Carlyle's. He saw the grandeur of the universe, and the solemnity of creative evolution, and he concentrated all his powers on solving the riddle of how mankind can be improved.

In those days men were asking themselves the question, How shall a man save his soul? Some said by accepting the Pope as the Vicar of Christ; others said by believing the teachings of the Calvinists; and some said by not worrying the mind with matters beyond human comprehension. Goethe's answer was different from all these, and his answer is the soul of all his teaching. It is that a man saves his soul by *striving*.

This is the central teaching of the immortal drama of Goethe's Faust. Faust makes a compact with Satan that Satan shall have his soul for all eternity if Faust is ever so satisfied with anything Satan provides that he asks for nothing more.

THE GOOD AND BEAUTIFUL THINGS THAT BELONG TO GOD ALONE

Satan then restores Faust to youth, gives him everything that he desires, and Faust goes from desire to desire, ever seeking the satisfaction of his soul, but never crying, *Hold: enough!* In spite of his sins, he is saved because he strives after the good, the beautiful, and the true; and Satan can show him only aspects of these things, never the things in themselves, for they belong to God. The soul of existence is the moral struggle.

Goethe is perhaps the only figure in German literature which seems endowed with what we should call Shakespearean calm. He wrote slowly and deliberately. There was something majestic about him. For many years he wrote no poetry worth speaking of, calmly and quietly devoting himself to the pursuit of science. He had nothing of the furious energy of Lessing, and little of the passionate zeal of Schiller. He seems to us, after his fervent youth, to have seated himself in some quiet corner of the universe and devoted all his attention to considering the work of God in Nature and in man's soul. His last words were. *Light, more Light*, and it is clear to us that all the noblest years of his manhood were spent in seeking that Light which never was on sea or land, but which lighteth every man's soul across the darkness and mystery of human life. Goethe's greatest glory is that he grew out of childish foppishness and sentimental egoism into the full stature of a mighty prophet.

THE POET SCHILLER AND HIS PLAYS OF HUMAN LIBERTY

There is a like seriousness in Schiller whose time was from 1759 to 1805, who at the age of 22 produced a play called *The Robbers*, which astonished the world. It almost idealised crime in its protest against the commercialism of the age. He wanted to bring back the heroic men he found in Plutarch, and to revive the

warrior-souls of German folk-songs. "The age seemed to him," says Dr. Calvin Thomas, "a pusillanimous, servile, cringing, babbling, ink-spattering age; the social order a conspiracy against all towering manhood."

He never found the peace that Goethe found, and never wholly lost the effect of rhetoric on his soul. But as he advanced in years, suffering and an invalid, he did see nobler things in liberty than he had first imagined, and in his great play of William Tell we feel that he has a right to be called the poet of human liberty, so high and clear and true rings out his challenge to all the forms of tyranny, so entirely does he associate himself with the patriotism of a people rightly struggling to be free. The friendship between Goethe and Schiller is a pleasant page in the history of German literature.

Schiller was near the end of his life when Heinrich Heine (born in 1797 and dying in 1856) appeared in Germany. A Jew who began life as a Byron of melancholy, he ended as one of the wittiest of mockers and one of the sweetest of singers in German literature.

THE CHANGE THAT CAME OVER THE LIFE AND LITERATURE OF GERMANY

No writer ever saw the faults of the Germans with clearer vision, and no man endeavoured more bravely to chastise them out of those faults, so dangerous to their destiny. In Matthew Arnold's poem on Heine's Grave we can see how the German singer was tortured, and how from his "mattress grave" he sang songs that will never die, though they were powerless to arrest this terrible march of the German people towards national downfall.

In Herder, Schiller, and Goethe we may behold the gentle side of our Aryan forefathers at strife with the warlike passion of those Aryan descendants who sang of heroic men and overthrew the Roman Empire; and this strife was revived again in a colder and more deadly spirit in the age of Bismarck. Men in Germany were still reading Goethe, and still studying the great German philosophers, Kant, Hegel, and Fichte—about whose immortal writings we cannot speak in this place—when the Prussian armies began to march, and the scattered German provinces became a single empire under a kaiser. Up till that time the Germans were known as a gentle, music-loving, deep-thinking, and modest people, who devoted themselves to a simple manner of living, and were famous for their beautiful home-life, their love of their children, and their happy way of keeping Christmas—an awkward, uncouth, and almost rustic people, very lovable to those who knew them well, and trustworthy in all their engagements.

THE NATION THAT FORGOT THE TEACHING OF HER GREATEST SON

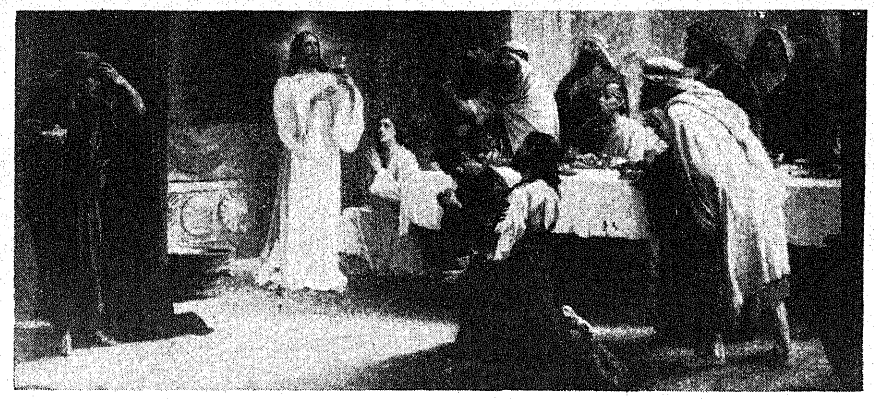
But with the military victories of Bismarck, and the rise of Germany as a power able to annihilate the armies of France, a change appeared in the journalism and literature of the nation. It was a return to the past. It was a revival of barbarism. From 1870 onwards the pure literature of Germany becomes contemptible. In science, in philosophy, and in historical criticism they held their proud position of eminence; but in prose and poetry they sank out of sight in European culture.

One figure of interest emerges from that sea of mediocrity. It is the figure of Nietzsche, who hated the Germans as Heine did, yet spent his days, and finally drove himself insane, in urging them to be supermen, or warriors of the ancient days. A writer called Treitzschke sounded the same dangerous note, plainly and blatantly and with no confusing imagery such as Nietzsche used; and the obedient Germans, responding to that note and forgetting Goethe, became the most offensive people in Europe. The Great War—in which for the first time they fought against England—the dismemberment of the German Empire, and the destruction of the Monarchy, brought an end to that painful period of their history; and it is now believed that the best minds in Germany are turning back to Goethe for guidance and consolation in the dark and fateful hour of their downfall.

THE GERMAN PEOPLE AND THE GREAT BATTLE OF THE SOUL

Those who read these words will be able to follow the movements of German literature during the next fifty years. Let them realise that in the heart of every German there is a love of peace and a fear of peace, and that this great battle of the human soul has not yet been fought out.

When the Germans have devoted themselves to peaceful pursuits and the study of the arts, especially music, they have produced some of the very greatest works of the human mind. In the opposite mood they have shown themselves intolerable to the rest of the world.



The Last Supper—by Joseph Aubert

THE TRIAL OF JESUS

THE morning had not yet broken when the captive Jesus was brought bound before Caiaphas, the High Priest of the Jews.

He had been hurried across the courtyard; with unseemly haste he was thrown before his second judge. The Master found himself surrounded on all sides by Pharisees and Sadducees, who whispered eagerly among themselves, and with unconcealed excitement endeavoured to hasten the trial. It was of the first importance to conclude the legal formalities as quickly as possible. The multitude who loved the Master were asleep.

Caiaphas was adroit and cunning. Alone among the high priests of that period he was able to hold the difficult office for many years. He was a man who satisfied the Roman government. Jew though he was, for the sake of power he veiled his antagonism to the hated foreigner, and fawned on the hand he wished to bite. He was something of a statesman. While satisfying the Romans, he pleased his own people.

Before this cunning man stood Jesus, bound like a thief, thronged on every side by Pharisees and Sadducees, and witnesses who were paid to bear false witness against him. The witnesses were called upon to give their evidence. It was a miserable scene of petty questions and blundering answers. No witness could be got to say what the priests needed for passing sentence of death. At last two men came forward who declared that Jesus had said he was able to destroy the holy temple of the Jewish religion and rebuild it in three days.

Caiaphas turned from the witnesses to Jesus, and inquired if he denied this charge. Jesus preserved silence.

"Answerest thou nothing?" demanded Caiaphas. "What is it which these witness against thee?"

But still Jesus held his peace.

Then the astute Caiaphas determined to get the condemnation of Jesus from his own lips. "I adjure thee," he said, looking earnestly at Jesus, "by the living God, that thou tell us whether thou be the Christ, the Son of God."

This was the question of questions. Witnesses might say this and that, priest and Levite might prefer charges against him, but here was the supreme and direct question. Did Jesus himself say that he was the king expected by the Jews?

If he said that, then there would be little difficulty with the Romans in bringing him to death. The court held its breath, waiting anxiously for the answer Jesus would give.

The answer was his doom.

"I am," he said, and then, while the astonished court gasped with horror, he added: "And ye shall see the Son of Man sitting on the right hand of power, and coming in the clouds of heaven."

It was the answer they had desired, but its awfulness horrified them in their triumph. Some of them spat on Jesus; others thrust their hands rudely over his face so he should speak no more; others struck him; there were mocking cries of "Prophesy! Prophesy!"

In this din Caiaphas rose, rending his garments to please the Jews by his zeal. "What need we any further witnesses?" he asked, pleased by his strategy. "Ye have heard the blasphemy; what think ye?"

The room was filled with shouts of "Death! Death!"

The trial was over. This committee of the Sanhedrin, sitting in the darkness of the night, decided that Jesus was guilty. That little body of priests believed that in sentencing Jesus to death they were putting an end to his teaching. None of them dreamed that he whom they condemned in the night would be known throughout history as the Light of the World.

THE SAD WORDS THAT JESUS HEARD AS HE CROSSED THE COURTYARD

Jesus was led away to the guard-room. As he once more crossed the courtyard, where the light of dawn was beginning to fall on the stones and pillars, the sound of a familiar voice reached his ears. It was a voice very dear to him. It was the voice of his close friend and disciple, Simon Peter.

This disciple had come secretly to see the end. He had mingled with the crowd of people and servants waiting in the courtyard, hoping to escape detection among this excited gathering. But one of the servants heard him speaking, and recognised him. This girl turned to him and asked if he was a follower of Jesus. Peter denied the charge, and added, "neither understand I what thou sayest." Another maid approached and said: "This is one of them!" Again Peter denied. At last those sitting near him said: "Surely thou art one of them, for thou art a Galilean."

Peter, with an oath, angrily denied the dangerous charge, saying: "I know not this man of whom ye speak."

It was these words which fell on the ears of Jesus as he crossed the courtyard on his way to the guard-room. He turned and looked towards Peter, sitting beside the brazier with his hands extended to the glowing charcoal. The people rose with excitement as Jesus appeared. The eyes of Master and disciple met across that eager crowd, and the heart of the disciple broke within his breast.

PETER GOES OUT TO WEEP BITTERLY AND JESUS IS LED BEFORE PILATE

Jesus passed among the taunts of the people to the guard-room. Peter went out, and wept bitterly.

In the guard-room, while he waited for the dawn of Friday, Jesus was brutally treated by the servants of the priests. Worn and broken, he was dragged early in the morning before the full Sanhedrin, and after fresh insults and cruelty was led away to the Roman procurator.

Under the law of Rome the Sanhedrin could not take life; that right belonged exclusively to the imperial power. Therefore, it was necessary for the priests to persuade the Procurator of Judaea, Pontius Pilate, to give effect to their sentence of death.

Pontius Pilate is a name execrated throughout Christendom; but let us see if we cannot form a just idea of his character, and understand his position. He was a proud and able Roman, sent away from the splendours and glories of life in Rome to rule in a dull, dirty, evil-smelling city of the East. He came among the Jews despising them, and with the determination to rule them with a rod of iron. He was that type of imperial officer who rules subject nations by fear.

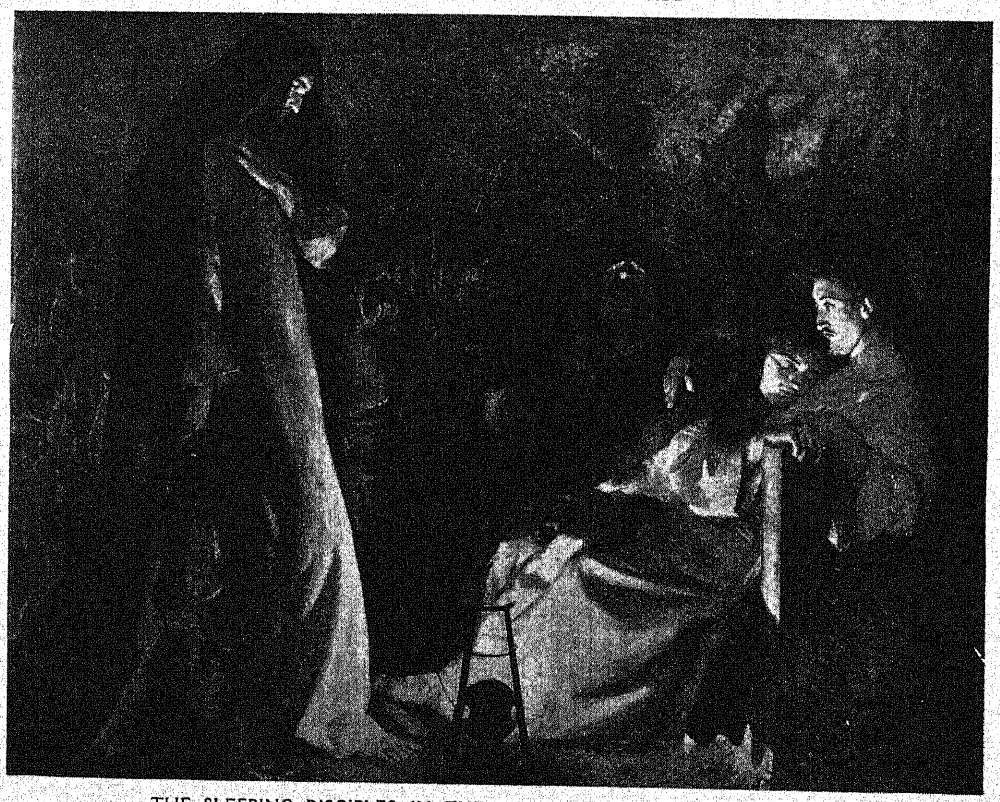
WHY PONTIUS PILATE WAS HATED AND LOATHED BY THE JEWS

Like all educated patricians of Rome, he was a man of books, accustomed to refined conversation, and interested in the advance of science. As Procurator of Judaea he found himself among a quarrelsome and cowardly race, always fighting about trivial matters, men who—in the midst of their insanitary and ignorant lives—dared to regard the Romans as an inferior race.

At first Pilate endeavoured to cow this petty people, but he was met by a form of resistance utterly new to him. The Jews did not strike against him, they *passively* resisted his demands. He encountered the total resistance of an entire people; the whole nation refused to obey. To destroy

CLOSING SCENES IN THE LIFE OF JESUS

THE LAST SUPPER—BY F. VON UHDE



THE SLEEPING DISCIPLES IN THE GARDEN—BY JOHN H. F. BACON

an army is one thing; to destroy a nation is another. Pilate found himself powerless.

Then it was that he discovered the tremendous seriousness with which these Jews regarded their religion. Rather than see that religion injured or degraded in the smallest degree, the Jews would withstand the empire, would die to the last man.

THE NEWS THAT CAME TO PONTIUS PILATE ON A FRIDAY MORNING

Pilate endeavoured to do something for the comfort and cleanliness of Jerusalem. The greatest need was pure water, and he set about the construction of an aqueduct. To pay for this the enormous sums of money accumulated by the priests in the temple were to be employed. But the priests and people opposed Pilate, and the reform had to be dropped.

He was hated and loathed by the Jews. They schemed against him, and sent reports to Rome that this tyrannical governor was ruining the province, and would surely lose it to the empire. Pilate appears to have had trouble with the emperor on account of his reports, but the fact that he held his post for ten years proves to us that on the whole he was upheld by the authorities at Rome.

To Pontius Pilate, then, as he sat in his palace on this Friday morning, came the news that there were priests calling for him, with a vexatious and troublesome minor matter. The fact which most annoyed him was that he had to go out to these despised Jews instead of summoning them to his presence, For the Jews would not enter the palace of any Gentile, as all foreigners were called, because they said it polluted them, and this rule of theirs had to be accepted. The proud Pilate had found, early in his procuratorship, that it was necessary to bow to the Jews in this matter.

PONTIUS PILATE MOVES TO HIS PLACE IN UNIVERSAL HISTORY

So, on this Friday morning we must picture to ourselves the proud Roman governor, rising impatiently from his ivory chair, leaving the serious business of rulership to settle some trivial quarrel of this hated race.

It did not occur to Pilate, as he rose with vexation and made his way through the pretorium to the outer court of his palace, that he was moving to a place in universal history, that he was going to write his name in everlasting characters on the walls of Time.

The scene that met his eyes as he emerged from his palace presented nothing unusual. There in the courtyard, filling it with the evil odours of their dirty clothes, was the rabble of Jerusalem, laughing, gesticulating, talking at the tops of their voices. There, too, was a gathering of priests, fresh from some angry altercation in their Sanhedrin. And there, too, was the unfortunate prisoner, a man bound with ropes, a poor, harried, overdriven, and ragged man, whom they had kept awake all night with their pitiful quarrelling, and who now stood, pale and haggard, in their midst, waiting to hear what the Roman governor would say.

That is the scene—the haughty Roman looking down on the noisy rabble and the whispering priests; the whispering priests glancing up threateningly at the Roman governor. And in the midst of it all, bound with ropes, worn and sorrowful, stands Jesus, the Light of the World.

Pilate heard what they had to say. Somebody had been setting himself up as a King over the Jews. They made it a serious matter; this man Jesus was attempting to overthrow the dominion of Rome; he was a traitor against Caesar. Amused that they should be so hot in favour of Caesar, and amazed that they should take seriously any attempt to overthrow the power of Rome, the procurator searched among the crowd for the prisoner.

PILATE LOOKS UPON THE SAD FIGURE OF THE LIGHT OF THE WORLD

There, in the centre of the seething mass, pale, weary with want of sleep, bowed and broken by the savage treatment he had suffered, stood a young man bound with cords, held by Levites of the temple guard—Jesus of Nazareth.

Pilate looked upon him.

"Art thou the King of the Jews?" the Roman asked.

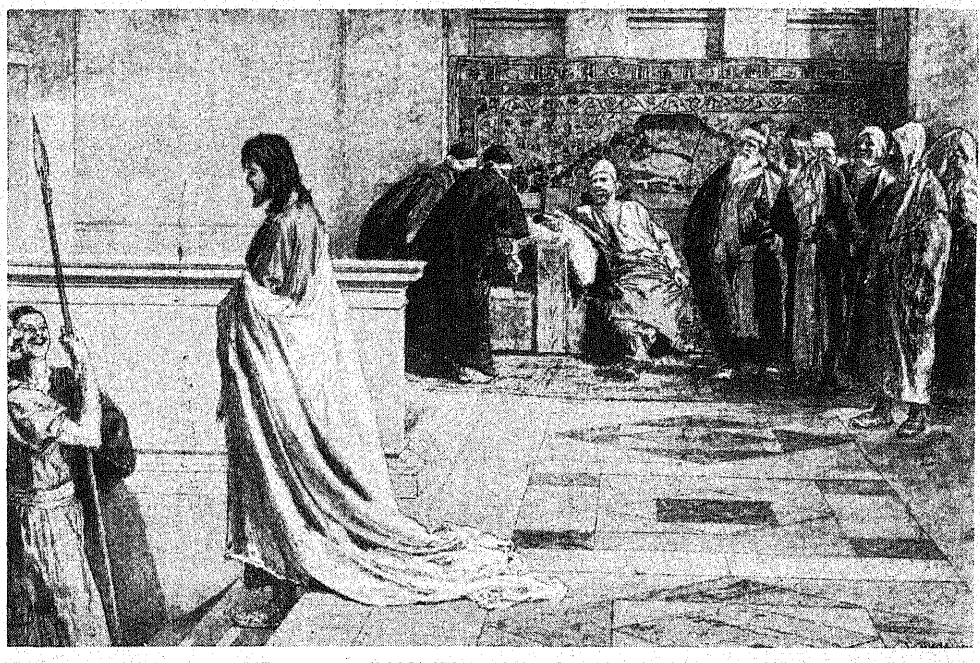
The question was meant to dispel the charge. But, in the hush of silence which had fallen when Pilate spoke, Jesus replied: "Thou sayest it."

It was the answer the priests wanted; but Pilate was convinced that this was no seditious rebel against the Roman power, and he again sought to dismiss the charge.

"I find no fault in this man," he said.

Pilate was struck by the self-reverence of this lonely, silent figure in the midst of that clamorous multitude. To punish such a rare Jew seemed to him unnecessary. He made light of the charge, and suggested to the people that as, according to his custom, he was willing to release one

SCENES AT THE TRIAL OF JESUS



HEROD MOCKING JESUS—BY DOMENICO MORELLI

ECCE HOMO: BEHOLD THE MAN—FROM THE PAINTING BY ANTONIO CISERI

The pictures on these pages are reproduced by courtesy of Messrs. Alinari, Bonnaire, Bruckmann, Holkema, and others

prisoner at their Feast of the Passover, he should release this " King of the Jews."

But at this a snarling cry of rage broke from the crowd.

" Not this man ! Not this man ! But Barabbas ! " The fury of the people was extraordinary. Pilate marvelled that they should be so eager to punish this young Nazarene. They preferred that Barabbas should be released ; Barabbas, a dangerous rebel who had committed murder.

" What will ye, then," he asked, surprised at their choice, " that I shall do unto him ye call the King of the Jews ? "

" Crucify him ! " was the terrible answer. It rang through the courtyard like the howl of wolves. It staggered Pontius Pilate as he stood looking down on the people. Crucifixion—the extreme penalty, the agonising and most shameful death known to a Jew ! Crucifixion for a young man who had called himself King of the Jews !

" Why," he expostulated, " what evil hath he done ? "

Fiercer than ever came back the answer : " Crucify him ! Crucify him ! "

It was in vain that Pilate endeavoured to understand these Jews over whom he ruled with contempt and disgust.

PONTIUS PILATE YIELDS TO THE MOB AND CHANGES THE HISTORY OF THE WORLD

If they had cried " Scourge him ! " he might have understood ; if they had cried " Imprison him ! " he might have sympathised. But " Crucify him ! " crucify this harmless and quiet young man—that was a barbarous act.

And yet to him, the Roman, what were these petty disputes of the priests, and what was the life of a Jew ? The death of this silent young Jew would make no difference to the world. The loss of the world to him would not count for much. There would be one Jew the fewer for Pilate to rule over, and one man more whose eyes had closed on the skies and the green earth for ever. That was all. Why should he pity Jesus ? Why should he stand any longer in this wretched crowd ? Perhaps it was with a contemptuous shrug of his shoulders that he at last accepted the verdict of this mob. He gave the order for Jesus to be scourged.

That decision of Pontius Pilate—a decision to which it appears he attached not the smallest importance—was destined to alter the history of the world. It is, indeed, impossible for us to imagine what civilisation and the map of Europe would now be if Pontius Pilate had refused to put Jesus to death.

We are filled with wonder, looking back now through the distant corridor of Time, to see the figure of the Roman procurator moving impatiently away from the Jews, turning his back on Jesus, and going with relief to the purer air and the cultured delights of his beautiful palace.

THE SCENE IN THE COURTYARD WHEN PILATE SET BARABBAS FREE

That figure of Pontius Pilate, moving away from the Light of the World, remains for humanity one of the most striking in all history. The victories of Napoleon are as nothing in comparison with the act of Pontius Pilate in turning his back on Jesus.

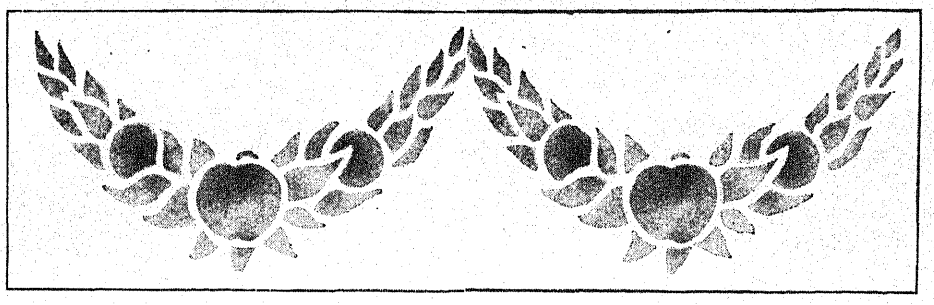
Imagine the scene. From the crowded courtyard arose a shout of delight and derision, delight that Jesus would die, derision that Rome had been compelled to do the will of the Jews. And while Pilate marched back to his palace, a new shout of triumph arose, for Barabbas the murderer was free again, and was being deliriously embraced by his friends.

In the midst of this hideous and degraded scene, picture the figure of Jesus. Can we not imagine how that lonely, tired, and silent man was taunted and brutally treated by the rejoicing mob ? Can we not imagine how they struck at him, how they shouted in his face, how they spat upon him ? Can we not imagine the terrible pressure about him—the swaying of the mob as they struggled to get near him, that they might strike, and insult ?

FAR FROM THE GREEN HILL, FAR FROM THE LITTLE FLOCK

And this was the Jesus who had taught men that the Creator of the world is a Father, that all humanity is a brotherhood, and that to enter into the kingdom of heaven a man must become as a little child. Far away now is the green hill where he uttered the Beatitudes ; far scattered is the little flock of disciples who looked to him as their Shepherd ; far distant is the home in Bethany where he had loved to rest with Martha and Mary.

He is alone with the Jews. The scourge is being prepared. The Cross is drawing near. Last night the Garden of Gethsemane ; this morning the Hall of Justice. Pontius Pilate, the Roman governor, has turned his back on Jesus.

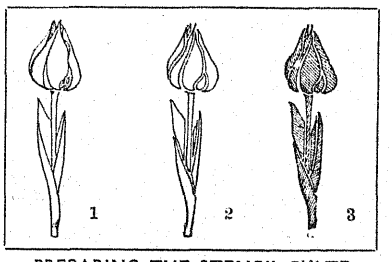


PAINTING WITH STENCILS

ONE of the simplest and most effective ways to ornament a tablecloth is to stencil a pattern to form a border.

Stencilling is a type of decorative painting. It is used on walls and ceilings, as well as on smaller things, such as curtains, book-covers, dresses, and cushions.

Many big buildings, like concert-halls and churches, are decorated inside entirely by stencilling, but it is also quite easy to make simple patterns for borders, and with them to decorate little things of our own. But we want to know how stencilling is done.



PREPARING THE STENCIL PLATE

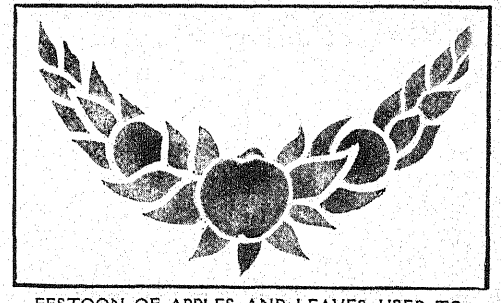
First of all we must understand what is meant by a " stencil plate." It is simply a piece of stiff paper with a pattern cut out of it. The pattern is so arranged that when the plate is laid on any piece of material, colours can be painted through the holes right on to the material in the exact shape of the cut-out pattern. There are three great advantages in this method of painting : The outline of the pattern is always very neat ; the pattern itself can be repeated any number of times from the same plate ; and beautiful shaded effects can be obtained very easily.

Now we are going to see how to make a stencilled border with a regular pattern.

Choose a simple flower—say, a tulip—and draw it carefully on a piece of rather stout cartridge paper. Draw it as simply and severely as possible, leaving out all detail. It will look something like picture 1, and be about four inches long from top to bottom.

Now go round the outline of each leaf and petal, as is shown in picture 2, enclosing each portion of leaf and petal in a separate space. When we have done this, and made all the lines between the spaces quite even in width, we must shade in each space with pencil-lines—picture 3 shows us how—as a guide to the next step.

Now get a sharp penknife ; lay the paper on a sheet of glass and carefully cut out each shaded-in piece, going round the outline with the point of the knife and keeping the paper pressed firmly on the glass. Be very careful not to cut the paper beyond the shaded portion.


FESTOON OF APPLES AND LEAVES USED TO DECORATE A LAMP-SHADE

When each little piece is cut out we have made our first stencil plate. But before we can use it we must buy a small quantity of " knotting " varnish from an oil-shop and paint over both sides of the plate. The varnish will harden and prevent paint soaking into the plate and rotting it. When both sides are varnished we must

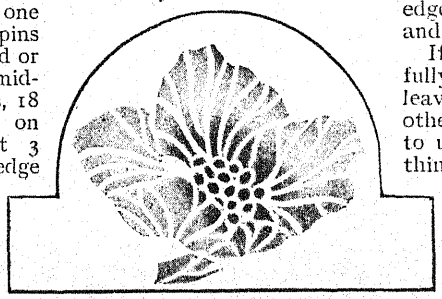
hang it up to dry, either near the window or in the open air. Suspend it by a thin string loop put through a pinhole in one corner, and see that it does not touch anything, for it is now rather sticky. We must not use it till the varnish is dry and hard.

The kind of brushes to use are short, round, stumpy ones of soft hog's-hair; they can be bought at any oil-shop. Use ordinary artist's water-colour paints in pans.

LAUREL LEAF CURTAIN BORDER

Now we must begin to think about the table-cover which we are going to make.

Buy a piece of casement cotton. Choose a soft green colour, and cut it into a yard square. Straighten out one edge, and with drawing-pins fix it to a drawing-board or a flat table. Find the middle of the side (that is, 18 inches from the corner); on that point, and about 3 inches away from the edge of the cotton, lay the stencil plate quite straight. The stalk should point toward the edge and the flower inward. Fix the plate in position at the top with two drawing-pins. Slightly moisten the paint in the pan, and rub the brush on it, then with a dabbing action go over all the holes forming the design. Choose another colour and another brush for the leaves and stem, and do those in the same way. Then from the bottom gently lift the plate a little way and peep underneath. We shall be able to see how it looks, and whether we have got our colours deep enough.



HOW TO MAKE USE OF THE VEINING IN A LEAF FOR TIES

Here are some things that we must try to remember:

1. Be careful not to get the paint too wet. Never dip the brush in water, but always moisten the paint itself, then rub the brush on the paint.

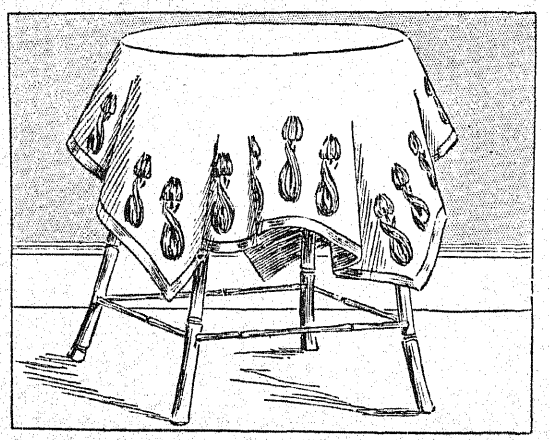
2. Always paint with a succession of dabs. Do not use the brush as an ordinary house-painter does, or you will make a smear and spoil the edge of the pattern.

3. Obtain the shading by dabbing more at the base of the tulip petals than at the tips.

In choosing colour, a deep yellow (almost an orange) shading into pale primrose for the flowers and a dark green tipped with brown for the leaves will look well.

Now we have to decide how close we want the next tulip to be, and make a small pencil-mark on our cotton the necessary distance away. Space the remainder along the side, with tiny pencil-marks as a guide. Unpin the plate, replace it over one of the guide-marks, and continue to paint. Probably we shall find that about nine tulips will space out well in a yard length, four on each side of the middle one. When we have done the other sides and hemmed the edge our cloth will be finished, and look very charming.

If we keep our plate carefully pressed between the leaves of an old book some other time we shall be able to use the design for something else—perhaps a border of tulips round a bedroom wall, or a single one to decorate a plain holland book-cover. It will be better to begin by using our plate on an old piece of stuff, or on a piece of paper, before actually working on the table-cover; then we shall learn how wet the paint should be, and how to dab properly. We might also experiment with a little shading from dark to light tones of colour.



THE STENCILLED TABLECLOTH

We must notice the stencilling used in any buildings which we visit, and have a close look at it; we shall soon learn to detect it by the separateness of each little bit formed by the cutting out. Of course, if each little piece were not separate the design would not hold together in the plate. The pieces which are left between the cut-out portions are called "ties." We must always pay great attention to them when we make a new pattern.

There are many ways of using stencils and making elaborate and beautiful patterns with them. Sometimes one is used over another, the big ones being made of tin or sheet copper. But these are difficult to use

A TOY BATHING MACHINE

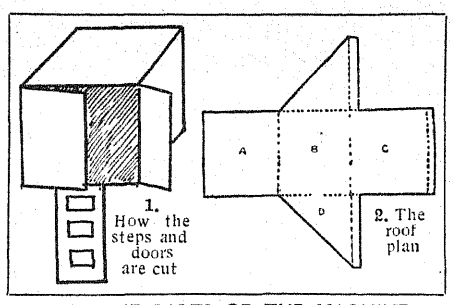
WITH a little patience we can make a capital model of a bathing machine out of some small cardboard boxes.

First we must get a little box, somewhat square in shape, opening with folding flaps at both ends. Chemists often sell patent medicines in this kind of box.

We shall also want the lids and ends of four gas-mantle boxes.

The first box goes to make the body of our machine, and the round ends of the mantle-boxes are for making the wheels.

A piece of cartridge paper, or even an ordinary postcard, will make the roof; and we shall need some plain paper with which to cover the whole "body" and hide the printing, before we paint in the stripes with our water-colours. We also want a small, smooth stick from a bundle of wood, some scissors, a penknife, some glue and gum, and four pins.



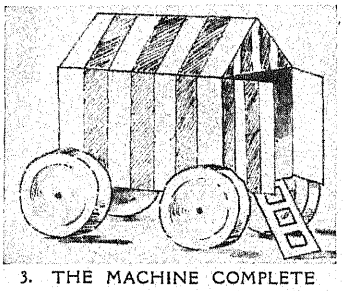
1. How the steps and doors are cut

2. The roof plan

1.-2. THE PARTS OF THE MACHINE

First we cut away, with scissors, the flaps on the main box so that only the pieces representing the doors and steps are left.

This can be seen plainly in picture 1. The top flap has been cut off altogether; the two side flaps are halved for doors; and the steps are formed by an inch of the middle of the bottom flap being left, and having holes cut in it to make it look like a ladder. Both ends are treated alike.


3. THE MACHINE COMPLETE

The roof of the machine is shaped from the postcard or cartridge paper, cut as shown in picture 2, folded and stuck with glue to the roof. The dotted lines drawn on the plan of the roof, to show where to fold, should be lightly cut with a penknife halfway through the card or paper.

We get the correct shape for the roof by making A the same size and shape as the top of our box.

A is, of course, the side we glue down to the roof of the box. B is the same size, and C is rather larger than either A or B, to allow for the join. Perhaps it will be as well for us to try a pattern of this in a scrap of notepaper first. As will be seen the box shown here is not quite square.

The box and roof have now to be covered with thin paper, white or some pale tint, gummed or pasted on to hide the printing on the box and the joins on the roof. We then mark in the stripes with pencil, and paint them red or blue with white stripes between.

The wheels of the machine are our next care. We fix the ends of the mantle-boxes firmly, one inside the other, making a small box out of each pair. These form the chubby little wheels.

Cut the stick into two pieces, each the width of the bottom of the machine between the wheels. Smooth the edges with a pen-knife. Fix each wheel to the wood, two to each piece, by a strong pin run right through the wheel and into the end of the wood.

The two wooden bars can then be glued into position on the bottom of the machine, and the wheels will, if not too tightly pinned, go round and run it along.

If we cannot get a box with four flaps, the steps may be glued on.

WEIGHTS AND MEASURES WE ALL CARRY

WE often want to weigh some small object, such as a letter that is ready for the post, when we have no scales and weights close at hand. What can we do?

Well, there is an easy way of getting over the difficulty. We can make our scales and use weights that all of us carry in our pockets every day. We are rarely without coppers in our pockets—pennies and halfpennies, if not farthings—and when we know their avoirdupois value, as well as their money value, we can use them in the place of weights.

Three pennies, for instance, are equal to one ounce, and five halfpennies, or ten farthings, weigh the same. Two halfpennies and a farthing make half an ounce, and so on. One halfpenny and one farthing together weigh a trifle over a quarter of an ounce—just a twentieth; and if we use a well-worn halfpenny we shall get practically the quarter of an ounce.

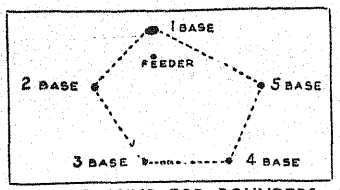
For scales we merely have to balance a stiff card on the edge of a rule, or some other similar surface, and weigh as usual.

Copper coins are very useful also as measures if we have no rule handy. Ten pennies placed in a line are equal to one foot, a halfpenny measures an inch, and a sixpenny piece is three-quarters of an inch in diameter. It is easy, with a little practice, to remember these weights and measures, and they will be found particularly useful to amateur photographers

HOW TO PLAY AT ROUNDERS

THE equipment for playing the game of rounders is of a very modest description. A bat of some sort is wanted. A tennis-racket will do excellently, or a very small cricket-bat. If the tennis-bat or the small bat be unavailable, then a small, flat piece of wood will do A soft indiarubber ball of good quality is also required.

In playing the game, five bases are marked out by upright sticks or stones. They should be about forty feet apart. Anynumber can play, but the players must divide into two sides. The first batsman takes his stand at base 1 with his partners in a row behind him. The feeder, a player from the opposite side, takes his place at the spot marked in the picture, and pitches the ball to the batsman. The rest of the enemy are spread about the field. Directly the ball is hit, the batsman drops his club and runs to base 2. Should there be time he may continue the run to base 3, but in doing so there is a risk of one of the opposite players throwing back the ball and hitting him while between the bases, in which case he would be out.



THE GROUND FOR ROUNDERS

If he hits the ball to such a distance that there is time for him to run round all five bases before it is recovered, he may take up the bat again. But if he runs only to base 2, the next player becomes batsman.

If the ball, after being struck by the batsman, is caught by the feeder or one of the fielders, the batsman is out. If he tries to strike the ball but misses it, he is out, and the next player takes his place. Sometimes there may be one player standing at each base, and every time the ball is struck each player must run on to the next base. Thus the player at base No. 2 runs to base No. 3, the player at base No 3 to base No. 4, and so on. No two players can stand at one base. The game is won by the side that gets the greatest number of players back to the first base without being out.

THE PUZZLE OF THE LAUGHING SAILOR

HERE is the portrait of a laughing sailor made up of lines and dots. Now, what is he laughing at? Well, he knows that there is a puzzle to be solved in connection with his face, and he is laughing because he thinks none of us will be able to solve it. If we look closely at the portrait we shall see that in several parts the string of lines and dots comes to an end in a single dot, as, for example, in the eyebrow and the ear. There are six of these places where the lines come to an end. Now this is the puzzle. If we start at the big spot in the middle of the man's cap, counting that as number one, it is possible to move along the lines, counting the dots as we go, till we come to a twenty-fifth dot, and that dot to be the dot at the end of one of the lines, like the eyebrow, where we can go no farther. There are several ways in which this can be done, and we can take them one after another and, starting at the button in the centre of the cap, reach the dot where the lines end, counting only twenty-five dots in all each time, including the one where we finish and the big dot in the middle of the sailor's cap. Now let us see if we can do this, and in how many different ways it can be done. We do not want to spoil this book, so we will take a piece of tissue or tracing paper, and, putting it over the sailor's face, trace it. Then we can mark the traced copy. Be sure to remember that we count the big button of the cap where we start as the first dot, and we must end at the twenty-fifth. The solution will be found in Section 39 of Group 18

THE EASIEST WAY TO MULTIPLY BY NINETY-NINE

SOME of the numbers in the multiplication table are easy and some are difficult. Some of us may think that the figure 9 should not have been in it at all. But there is a very easy way of multiplying by 9.

Suppose we want to multiply by 9. Well, the easy way is to put 0 after it and then put the same figures below, without 0 added, and do it as a subtraction sum. This is how it is done:

34,875,695	
348,756,950	
34,875,695	
313,881,255	

When we add 0 to a number we really multiply the number by 10. The number 9 is, of course, one less than 10, so that when we multiply by 10 and then subtract the number itself once we are really multiplying by 9. This way saves more time if we are multiplying by 99, or 999, or any number of nines. Suppose we have to multiply 9,876,543 by 99, this is how we do it:

987,654,300	
9,876,543	
977,777,757	

We simply add 00, which is the same as multiplying by 100, and then take away the number once. In multiplying by three nines (999) in this way we add three noughts (000), and so on with any number of nines

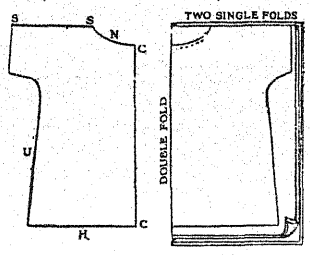
WHAT TO DO WITH A GIRL'S WORK-BOX

5. The Doll's Frock

THE pattern for the little frock is quite a simple one, as picture 1 shows, because it is a Magyar shape, cut all in one piece.

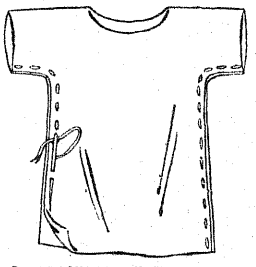
When we cut our pattern, we must remember to allow for the gathering at the neck by cutting the whole shape a little wider than if it were to be quite plain.

The edge of the pattern marked C to C is the centre; N the neck, S to S the shoulder; U the under-arm, and H the hem.



1 and 2. The pattern and how to set it on the material

Picture 2 shows how to place the pattern on a piece of material that has been folded twice, to give four layers. In cutting out the frock, we do not cut along the centre edges, C to C, nor along the shoulders, S to S. We leave a little extra on the under-arm edges to allow for seams; also about two inches on the bottom for the hem. No turnings are needed at the neck and sleeve edges, as these are going to be bound with a strip of the same material.

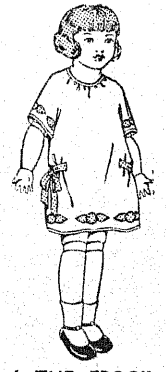


3. MAKING THE FROCK

Having cut the frock out, open it out once, so that it appears as in picture 3; then sew up each under-arm seam. A little French seam will do very well for this little frock, especially if we are using Japanese silk, or some thin material.

If the neck is cut rather high, we must make a slit down the top of the back, to form a placket-hole here. Make the slit in the middle of the back, from the neck down to the depth of about three inches, or even less, if the doll is a small one.

This placket-hole is made very much as we made the slit on each side of the knickers. See page 4590.



4. THE FROCK

Three or four little buttons and buttonholes are needed to close the frock, so in this case the left side or under part of the placket-hole, which would be the one to receive the buttons, must have the false hem to make it strong for the buttons.

The right edge or upper side of the placket must be faced in with a strip of material. This facing strip is put on like a false hem, except that after running it to the right side of the frock edge, instead of turning it over to the wrong side to only half its width, we turn it all in, and hem the other edge down to the frock, so that it is not visible from the right side.

The next step is to make a hem, and this for a doll's frock should be about two inches wide all round, with a quarter of an inch turned inside.

The neck part of the frock is gathered simply into a little straight band, which is first run edge to edge with the main part of the frock, and then hemmed over the gathers.

The sleeve edge is finished with a binding in the same way.

The sash used to tie in each side of the dress consists of two strips of ribbon. One end of each strip is neatly hemmed to the frock, and the other ends are tied. If we like, we can work buttonholed slots at the sides and thread a sash through them.

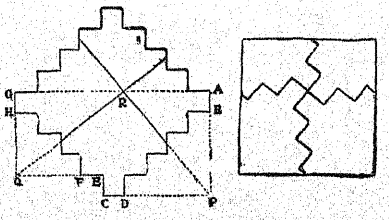
The pretty trimming of the frock is called appliqué. To copy the trimming we cut rounds and ovals of a contrasting coloured material, and buttonhole-stitch them to the dress along the edges with coloured silk.

If we prefer some other style of frock we can choose one from the grown-up fashion papers. Now that we understand something about patterns, they will be quite easy to manage.

SOLUTION OF THE SQUARE PUZZLE ON PAGE 4592

WE read on page 4592 how Kenneth tried to solve a puzzle which he had found in an old book. The problem occupied him nearly all day long, but just before bedtime came he was successful, and his father was very pleased.

This is how he did it. Prolong the lines A B and C D to meet at the point P; and also the lines E F and G H to meet at Q. Then along the line A G, measure A R equal to B P. If we now cut along the lines P R and Q R to the edge, we shall have four pieces which fit into a square, as shown in the second diagram. The original figure was built up of rows of squares, beginning with a row of nine. The puzzle is solved in exactly the same way if we begin with a row containing any *odd* number of squares, the successive rows each containing two squares fewer than the previous row, so that we always arrive at a single square at the top and bottom.



GAMES FOR A WINTER EVENING

Here are some games to play in the evening, or on a wet day when we cannot go out. Several of them can be played sitting comfortably round the fire.

CLUMPS

THE players divide into two parties. One player from each party leaves the room, and between them they think of some article or thing, let us say: The smallest window in St. Paul's Cathedral. While they are outside the rest form themselves into two circles, one at each end of the room. On returning, one of the "thinkers" goes into each of these circles, where he is plied rapidly with questions, the answers to which must only be Yes or No.

Each player takes it in turn to ask a question: Is it animal? Then: Is it mineral? Is it vegetable? Is it in England? Is it in this room? and so on, and the side that guesses the object first claims both "thinkers," and so adds to its numbers, and the game begins again. When the players are tired, the biggest side has won.

BRIDGE-BOARD

A BRIDGE-BOARD is a long, thick piece of wood with a number of arches cut in it. If we have not one, we can build a very good board from a box of bricks, or even by standing our smaller books in a row, and placing others across the tops. Each arch of the bridge should be marked with a separate number, and one of the players, called the keeper, should stand by it at one end of the room, while the rest go to the other end with marbles. Turns are then taken to roll the marbles through the bridge. the one who sends them under the arches with the highest number winning the game.

When we build our bridge we can make the arches whatever size we like. They should be large if we choose to roll the marble from a distance, and small if we are going to stand near.

A HOUSE PAPER-CHASE

FOR this game we shall want a large number of pieces of square paper about the size of a playing-card. On each slip a figure should be marked plainly—thus, 1, 2, 3, and so on, up to 20 or 30. These slips are given to the boy who is the "hare," with permission to drop them one by one, in the order of the figures, anywhere he likes in the house, but always where it will not be very difficult to see them. After waiting a minute or two, the hounds start in pursuit, but must follow him only by finding the scraps of paper in their proper order.

The hare does all he can to avoid being seen until he is safe back in the nursery, but even if seen he cannot be caught unless the hounds can produce all the slips of paper that he has scattered. If they make a prisoner of him, and he can show that there are numbers missing between those he still has and those in the hands of his captors, he must be set free again. If there are only one or two thus missing the chase becomes exciting, because he must not return to the nursery till all his slips are parted with.

TELEGRAMS

ONE of the players calls out that a telegram of twelve words has to be sent off describing, let us say, the Boat Race, and the words must begin with certain letters. He mentions twelve letters of the alphabet which he has chosen, and each player puts them down on a slip of paper.

Five minutes are given for the writing of the telegrams, and when the time is up they are all read out aloud.

Clever players sometimes make very funny telegrams, and a great deal of fun can be got out of the game. A prize can be given for the best telegram.

OBJECT GAME

THIS is good practice for the memory and the power of observation.

Each member of the party has a piece of paper and a pencil. When all are ready someone enters the room carrying a tray with about twenty small articles on it. The tray is placed in full view of everybody and left there for one minute, during which time no one must touch pencil or paper, but must simply look at the contents of the tray. At a given word it is carried away, and the players must write down the names of as many of the articles as they can remember having seen. Only a certain time is allowed for this, and those who remember the greatest number of articles win the game.

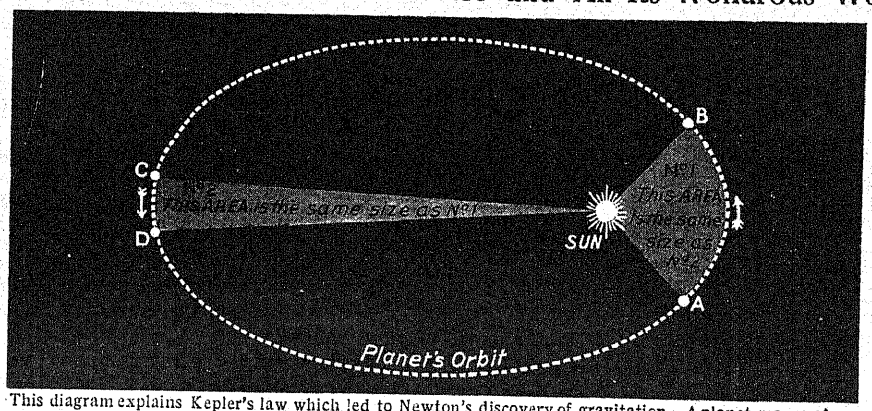
The objects chosen should be of the simplest kind—a black pin, a tiny piece of coal, some birds' seed, a piece of fluff, a hair, a scrap of sealing-wax, and so on.

GENERAL POST

ALL the players sit round the room in a large circle, and one, who is blindfold, stands in the middle. Each player takes the name of a town, and the leading player makes a list of these, from which he calls out now and then, thus: "The Post is going from Bristol to York," choosing towns on opposite sides of the circle.

Bristol and York jump up and slip across to each other's seat, the blindman doing his best to catch one of them as they pass. When several towns have changed places, and the blindman has failed to make a prisoner, the leader cries out "General Post," when all must jump up and cross over to opposite sides.

In the hurry and confusion the blindman is sure to catch someone, who takes his place while he becomes one of the towns.



This diagram explains Kepler's law which led to Newton's discovery of gravitation. A planet moves along the boundaries of equal areas in equal times, and so moves from A to B in the same time as from C to D

WHAT GRAVITATION MEANS

NEWTON'S three laws are called the Laws of Motion; there are three laws discovered by Kepler, which led up to them, and which we should consider here.

Kepler's three laws are called the Laws of Planetary Motion; they deal not with motion in general, but with the movements of the planets.

With immense labour, continued for many years, Kepler showed that all the planets which were then known moved according to certain laws, their speeds depending on their distance from the Sun, and so on. The calculations and statements of these laws are rather complicated, and do not matter for us now. There was no obvious connection between the three laws; there were simply three facts about planetary motion that were found by him and put down one after the other. But when the still more glorious mind of Newton considered these facts, he saw that there lay hid in them the Law of Gravitation, on which they all depend.

This law is responsible for perhaps the greater part of all the motion in the world. It is the law, as Herbert Spencer said, *by which the universe is balanced.* If the different bodies that make up the universe were still, and were balanced by the law of gravitation, that would be wonderful enough; but they are all in motion, and are yet controlled.

This great law explains the motions of the heavens on one great principle, which applies equally to the motion of an apple falling from a tree, and of the Moon round the Earth, and the other planets round the Sun. But, said a great philosopher, we shall never be able to tell whether gravitation exists among the stars. We have now proved, however, that it does exist there also. We can tell the mass and the distance of stars which have never been seen by the motion they produce through gravitation in stars that we can see.

No question of distance, then, destroys the working of this mighty law that every portion of matter in the universe attracts every other portion of matter with a power that depends, in an absolute regular way, on the amount of stuff which is being attracted, and on the distance. This law would alone suffice, if necessary, to make the universe really one.

> All things by immortal power,
> Near or far,
> Hiddenly
> To each other linkèd are,
> That thou canst not stir a flower
> Without troubling of a star.

This is how one of our poets has expressed it, and his lines make it beautifully clear

for us. The same poet, Francis Thompson, has said the same thing still more finely:

I do think my tread,
Stirring the blossoms in the meadow-grass,
Flickers the unwithering stars.

THE GREAT FORCE OF GRAVITATION THAT NOTHING WE KNOW CAN STOP

A very serious question for us is whether this great law can be at all changed or altered in its working. We have evidence that distance does not destroy it at all, but if we come back to Earth and study the working of gravitation in the laboratory, can we affect it there?

For instance, if we put something in between two other bodies, do we interfere with the gravitation between them, as if gravitation were something like light, which could be cut off; or does gravitation take no notice of obstacles? The answer to this is that the gravitation between two bodies is exactly the same, their weight and motion being unaltered by the presence of any obstacle between them.

Whether through air or through water or through space alone, whether through blocks of granite or anything else, the power of gravitation is neither more nor less. If no distance and no obstacles interfere with gravitation, what would be the result of heat? If we take a thing that has a certain weight owing to the Earth's pull for it, and its pull for the Earth, and if we examine this thing, first when it has been made fifty times colder than ice by being plunged in liquid air, and then when it has been made white hot, we find that the influence on the force of gravitation is nothing.

ATOMS OF MATTER THAT WEIGH THE SAME WHETHER BOUND OR FREE

We have failed to abolish gravitation by distance; we have failed to block it by any obstacle; we cannot affect it by temperature; but what will happen if we take certain weights of two elements, like oxygen and hydrogen, and combine them to make water? Does chemical combination affect gravitation? Do all the atoms of different things weigh exactly the same, whether they are independent of each other or whether they are powerfully bound to each other? The answer is that chemical combination has no more effect on gravitation than anything else has.

Other ways of trying to affect gravitation have been experimented with, but they have all failed. We know of nothing that will cause this force to turn one hair's breadth either way from its appointed course. There really seems to be no way of getting hold of gravitation. If we could once get our hands on it we could do anything, but no method ever tried has enabled us to modify it at all. Most people do not in the least understand what this means, however.

In a celebrated discussion last century, a very well-known man declared that he was defying the law of gravitation when he held an apple in his hand and prevented it from falling; but he was opposing force with force, and as long as the law of gravitation acted he had to pay his price every moment for holding up the apple. Exactly the same applies to aeroplanes. The force of gravitation is always acting, and from moment to moment the flier, like the bird, has to balance this force by some force acting in the opposite direction. The bird gets this force by burning sugar in its muscles; the aeroplane gets it by burning petrol in its engines. If in some way we could control gravitation the problem of flight would be solved.

THE MYSTERY OF THE FORCE WE KNOW AS GRAVITATION

But, not only are we unable to control gravitation; we cannot begin to understand it. We can measure it to a nicety, but as to why it acts we know nothing. There are at least twenty-four theories on the subject, and any one of them may be true; but, just because we cannot influence gravitation in any way, we can test none of the theories. There are signs, nevertheless, that long patient examination of the movements of the forces which bind matter into atoms, may yield information on the way in which the immense assemblages of these forces in suns and planets may exert an influence outside themselves. In other words, we may learn how masses of matter, especially when in motion, can set up fields of force outside themselves, and from this it may be but a step to show how these fields of force give rise to the attractions of gravity, and why their influence extends through space from star to star.

At present, however, about 250 years after the discovery of gravitation, we can only say that while we have proved the truth of Newton's law, and its independence of every kind of condition that we can imagine, we know no more of the cause of gravitation than he did, and he knew nothing at all.

Donatello

Ghiberti

Brunelleschi

Cimabue

Luca Della Robbia

Giotto

THE ARTISTS OF FLORENCE

THERE are four or five places in Europe to which all travellers wish to go. London has a certain wonder and grandeur, an evidence of wealth, with relics of history and great names, and withal a beauty of its own, different from the beauty of other cities. Next, people want to see Paris, with its noble boulevards, its handsome buildings, and all the attractions which give Paris its distinction. But the man who loves beauty in repose, the grandeur of sculpture, the dreams of genius fixed in stone, longs for the days which will take him to Florence, to Venice, and to Rome.

These cities were already old and well established when it was decided to rid them of their ugliness, and to clothe them with grandeur. The wonderful thing is that the cities found ready, in the course of no very long time, the men capable of carrying out the high ideals from which the search for beauty grew. Architects and sculptors arose whose works have seldom been excelled in the history of the world. Many of them sprang from such humble circumstances that we do not know their early history.

One of these men of humble birth is Arnolfo di Cambio. We meet him first in the company of a band of workmen who were engaged with him at work in the cathedral of Siena. He was still a young man, having been born about 1232. With him was a man named Lapo, whom he sometimes called his father and sometimes his teacher.

All these men were skilful artists, going from town to town in Italy, beautifying existing buildings or putting up new ones. It was Arnolfo that Florence chose to begin the work of beautifying the city. The young workman became suddenly renowned as an architect and sculptor, and while similar tasks were being attempted in the neighbouring cities he went swiftly to work to give Florence some of the buildings which to this day make her famous.

He was the father of her architecture. He surrounded the city with stately walls, he built her noble cathedral and two of her most beautiful churches, and he planned the famous public palace of the city, where the governors of Florence held their meetings. But Arnolfo could not finish all the great works he began. He died in 1300, leaving something for those who followed him.

While Arnolfo was creating wonders in stone, Giovanni Cimabue, born in 1240, was adding to her pictorial treasures. The art of painting had fallen low in Italy, and foreigners, who copied bad

models, ruled the world of art. Cimabue began, as other young artists began, by copying these unsatisfactory models. Soon, however, his independence made him strike out for himself, and to paint men and women and the things about him as they really seemed. Because he tried truly to paint as he saw things, he is honoured with the title of the Father of Modern Painting. He died two years after Arnolfo, in 1302. But he trained a greater than himself to succeed him. This was Giotto di Bondone, always called Giotto.

THE SHEPHERD BOY WHO DREW PICTURES AS HE SAT WITH HIS SHEEP

Giotto was born in or about 1266, the son of a poor peasant at Vespignano, near Florence. While he was still a little boy, Giotto was placed by his father with some shepherds to earn his living by watching the flocks. Giotto may have been a loving shepherd, but he loved art better. Without ever having had a lesson, he used to give all his leisure to drawing pictures on the rocks. While he was one day making a skilful drawing of a sheep, Cimabue found him. The great artist, pleased at the boy's industry and talent, asked if he would like to go home with him and learn to paint. He went, and proving a ready pupil learned all that Cimabue could teach him.

Cimabue had paved the way for a great change in the methods of artists; Giotto was really the first to give it expression. He was about 24 when he gained his first important commission—to paint a picture of Paradise over a church altar.

GIOTTO'S FINE PORTRAIT OF DANTE AMONG THE ANGELS

An interesting thing happened about this. Dante, the great poet of Florence, was at this time living in his native city, and had shown himself a friend of the young artist. So, as Giotto sat perched high up on his little platform near the roof of the church, he thought of what he owed the poet, and showed his gratitude by painting a beautiful portrait of Dante among the angel faces of his picture. That portrait is the finest portrait we have of the great poet, for it was painted before sorrow had marred his features.

Giotto's talent was speedily recognised. He was paid to do paintings for the famous church in which St. Francis of Assisi is buried; for churches at Padua, Verona, Naples, and elsewhere, and, of course, for many in Florence.

Wherever he went he was the simple laughing peasant turned artist. He had a merry jest for everybody, whether it was king or clown. Said a king who employed him: "I wouldn't work on that scaffold this hot day if I were you." "Nor would I if I were you," answered Giotto with a smile.

Another joke of Giotto's was at the expense of the Pope, who sent a great man round to all the cities to collect specimens of the work of artists, saying that the painter whose work he liked best should go to the Vatican. The other artists were anxious to show the best they had done; but Giotto was not at all concerned. He took up his brush, dipped it in red, and then drew with it a circle so perfect that it looked as if it had been drawn with compasses. "Here is the drawing," he said, handing it to the envoy.

"Am I to have nothing but this?" gasped the man.

"That is enough," answered Giotto, and it is said that the Pope sent for him, and that he painted some pictures in St. Peter's in Rome.

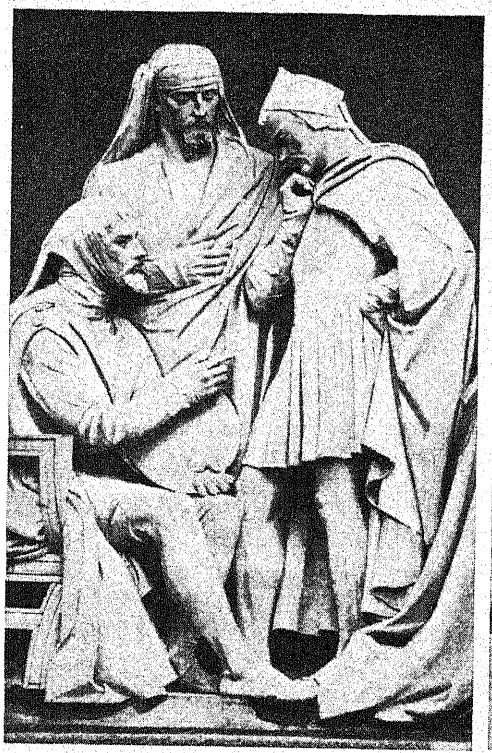
THE BEAUTIFUL TOWER OF GIOTTO THAT STANDS IN THE STREETS OF FLORENCE

When he was an old man, only three years from the grave, Giotto was made master of the public works of Florence, and given charge of the building of the cathedral, left incomplete by the death of Arnolfo thirty years before. Not only had Giotto now to superintend the work of others; he had to create with other tools than those he had been used to. He had to design a campanile, or bell-tower.

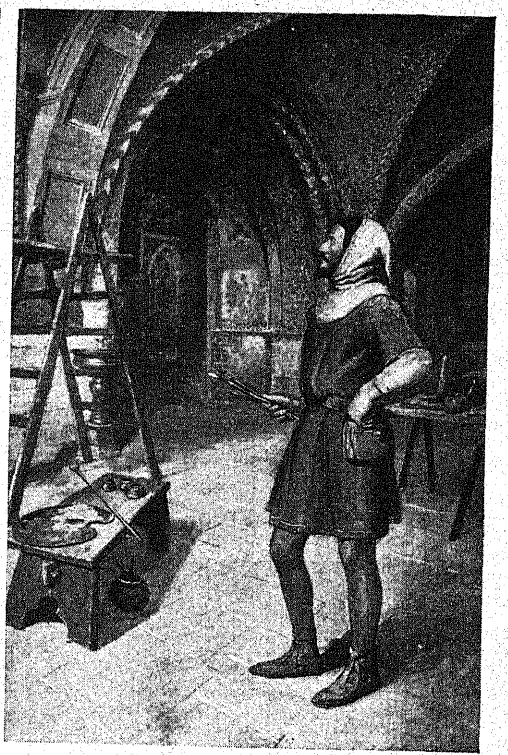
He did the work with as light a heart as if it were an everyday occurrence. He planned and designed one of the most beautiful towers ever built. It is one of the art marvels of Florence today, and visitors are proud to bring away bronze models of it. Not only did Giotto plan it, but he worked with mallet and chisel at some of the carvings which adorn it. One of the carvings represents a little dog which he had loved as a child when minding the sheep, and had remembered, years afterwards, when he was one of the most famous men in Italy.

The beloved Giotto passed to his rest in 1337—they buried him in an unknown grave close to his Tower, and we have now to go forward and leave the work of making Florence beautiful to artists less

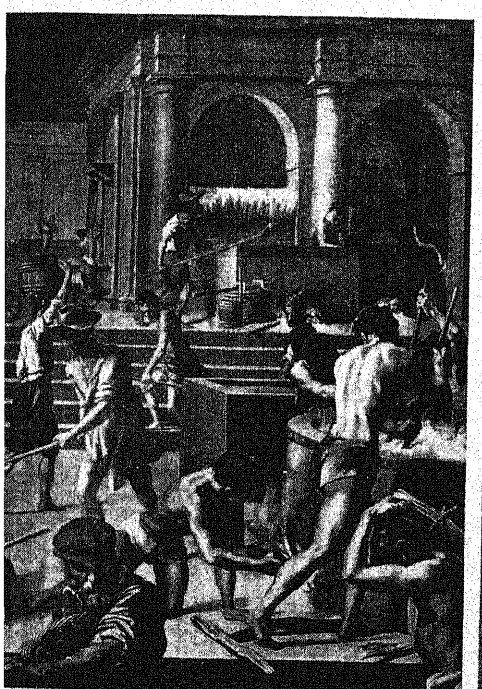
SCENES IN THE GREAT DAYS OF FLORENCE

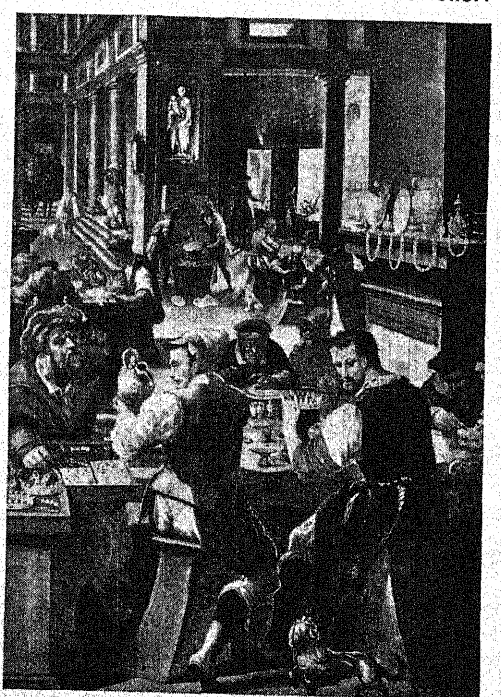


CIMABUE TALKS THINGS OVER WITH GIOTTO



CIMABUE DECORATING THE WALLS OF A CHURCH





SCENES IN THE WORKING LIFE OF FLORENCE IN ITS GREAT DAYS—FROM PICTURES IN THE VECCHIO PALACE

famous. We take up our story again when we find in Florence three other wonderful men. These are Filippo Brunelleschi, born in 1377; Lorenzo Ghiberti, born in 1378; and Donato Di Betto Bardi, called Donatello, born in 1386.

The first two came into prominence when Ghiberti was about 24, and they met as friendly rivals. Ghiberti was poor. We know nothing about his father, but we hear of his step-father, an excellent man named Bartoluccio, who instructed Ghiberti in his art as a goldsmith, then did a wise thing by sending the lad travelling, to enlarge his knowledge of art and to earn his living.

Ghiberti was a wonderful fellow. When he was not painting pictures he was modelling in wax, or making figures in bronze, or doing something with trinkets. Before he turned his face homeward he had earned fame by painting some fine frescoes in a palace at Rimini. He was working at Pesaro when he got a letter from his anxious stepfather telling him that all the most skilful artists in Italy were summoned to show their genius in designing gates of bronze for the famous church of San Giovanni, the church to which all the children of Florence were then, as now, taken to be christened.

THE GREAT CHANCE OF GHIBERTI'S LIFE AND THE USE HE MADE OF IT

Here was Ghiberti's chance. He needed no stepfather's bidding to hasten home; so anxious was he to reach Florence that the journey seemed to him, as he said, like a thousand years. He drew his plan, and sent it in to take its place with the designs of the most famous men of the time.

Among the other competitors was young Filippo Brunelleschi. He was a lawyer's son, and his father had wished him to follow the law. But Filippo early gave his heart to the work of the goldsmith, and dearly he hoped now to win the prize. When the designs were exhibited he took with him his humble young friend Donatello. They examined them all, and saw that Brunelleschi's was better than all save Ghiberti's. And so the judges found. Ghiberti was ordered to undertake the work; this young wandering workman of 24 was chosen before all the other artists who competed.

To understand what Ghiberti had undertaken we must examine the picture of the gates, or, better still, see the copy of them at South Kensington Museum, if we cannot go to Florence. It proved to be the work of Ghiberti's life. The first pair of gates took twenty years to make, and the second pair even longer. About fifty years of his career were given to this work, which was not finished until Brunelleschi was already in his grave. Yet, while Ghiberti was doing the gates with the assistance of a staff of artist-workmen, he was engaged in other labours, too. He did some beautiful things for two or three churches of Florence, as well as for the cathedral; he modelled fine statues, and carried out some beautiful goldsmith's work.

THE GATES MICHAEL ANGELO SAID WERE FIT TO BE THE GATES OF HEAVEN

Ghiberti was even given part share with Brunelleschi of the building work at the cathedral, but here as a builder he was a failure. Brunelleschi could not work with him, and had to refuse to go on unless Ghiberti were kept to work of his own; and even when they were able to give him his own work Ghiberti was found to be incompetent for building, and was removed. His grandest monument is the wonderful Baptistery gates, which for sheer grace and grandeur are finer than anything else of the sort in existence. Michael Angelo declared that they were fit to be the gates of heaven.

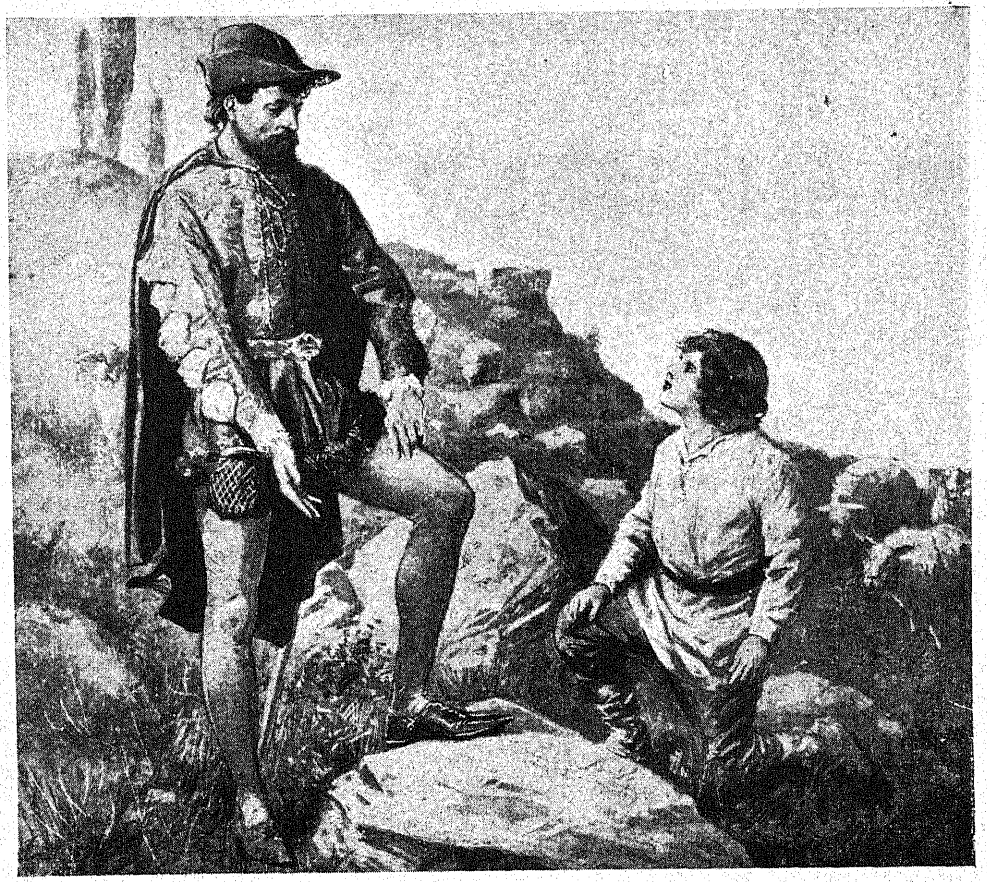
Ghiberti loved the work, and he gave the best of his life to it. Though its progress was so slow, all the most exalted people in Florence were interested in it. In those days Florence was an unlighted city at night, save for the torches which people carried, and everybody had to be indoors by dark. But Ghiberti became a great public character when he began the gates, and he and all his workpeople were allowed to walk about, carrying lanterns, at whatever hour of the night they liked.

It was well for Filippo Brunelleschi that he did not get permission to make the gates, for there was other important work for him to do, even greater in some ways than Ghiberti's. Himself an ugly little man, he had a soul for beauty, though not one of the kindest of natures.

BRUNELLESCHI PREPARING FOR THE GREAT WORK OF HIS LIFE

Having failed in his contest with Ghiberti, he went off to Rome to indulge his passion for architectural drawing. He had already sketched every building in Florence, and he longed to make a new drawing showing how Arnolfo's grand

THE MAGIC NAMES OF A GREAT CITY



THE DISCOVERY OF GIOTTO THE SHEPHERD BOY BY CIMABUE

DANTE INTRODUCES THE YOUNG GIOTTO TO AN INFLUENTIAL FRIEND

cathedral could be completed by the addition of a dome. So in Rome he studied all the great buildings. He made drawings of them; he noted how they were constructed, how beauty was combined with strength, and lightness with mass. In order that he might have money to live on he would work during the day for the goldsmiths, then at night go on with the drawings of his beloved buildings. Never did a man train himself more thoroughly for a task than did young Filippo for the Dome of Florence.

HOW BRUNELLESCHI BUILT THE DOME THAT IS THE GLORY OF FLORENCE

At last, in 1407, when he was thirty he returned and offered to the city authorities plans for the building of the dome. It took the wise men of Florence thirteen years to come to a decision, and in that time every sort of objection was raised, and everybody's opinion taken. Other artists made designs, and the wildest schemes were suggested for carrying out the work; but in the end Brunelleschi gained the day, and was told to carry out his plans.

The dome took over forty years to build, and Brunelleschi had been fifteen years in his grave when it was completed. But his plans were so perfect, his methods so excellent, and his personal labours during the last 26 years of his life so persistent, that the faithful band of workers who followed him had but to carry his work to the obvious end to make it one of the grandest features in the architecture of Europe. He crowned with a dome of grace and splendour the majestic cathedral begun 150 years before the dome was finished. Measured across, the dome is still one of the biggest in the world, and its beauty remains unsurpassed.

THE MERRY DONATELLO AND HIS WONDERFUL FIGURES OF STONE

So far we have met Donatello only by name. He was the young friend who went with Brunelleschi to see Ghiberti's drawing for the gates. He was one of the merriest fellows, and perhaps it was because of the youth's sunny nature that Brunelleschi, who was ten years older, became his friend and companion.

Donatello was the son of a wool merchant, who apprenticed him to a man supposed to have been Ghiberti's stepfather. At any rate, the boy learned the goldsmith's art, and, going to Rome with his friend Brunelleschi was able to support himself there as a metal-worker.

While Brunelleschi was studying architecture in Rome, Donatello was studying the statues. He had not his friend's capacity for great schemes and buildings, but he had as fine a genius, and though he laughed and joked his way through life he was destined to become Italy's greatest sculptor of later times, and the father of modern sculpture.

Before he went to Rome as a boy of fifteen he had carved a crucifix in wood, a statue of Mary Magdalene, and a marble statue of St. John, each of which may still be seen in Florence. When he returned from the Eternal City, he was twenty-one, and a trained sculptor.

Giotto's noble tower still needed some decoration, and Donatello was one of the sculptors engaged to complete it. He carved for it a lifelike figure called Zuccone and as he gazed on his finished work he took up his mallet, and, giving the statue a playful tap, said to it: "Speak!" Michael Angelo, who was not born until nine years after the death of Donatello, saw one of Donatello's famous statues. This one was the wonderful figure of St. George, clad in mail, looking as if it is ready to step down from its pedestal and do battle against wrong. As Michael Angelo looked, he remembered what Donatello had said to Zuccone, and he himself now shouted: "March!" Could there be a finer compliment to a sculptor?

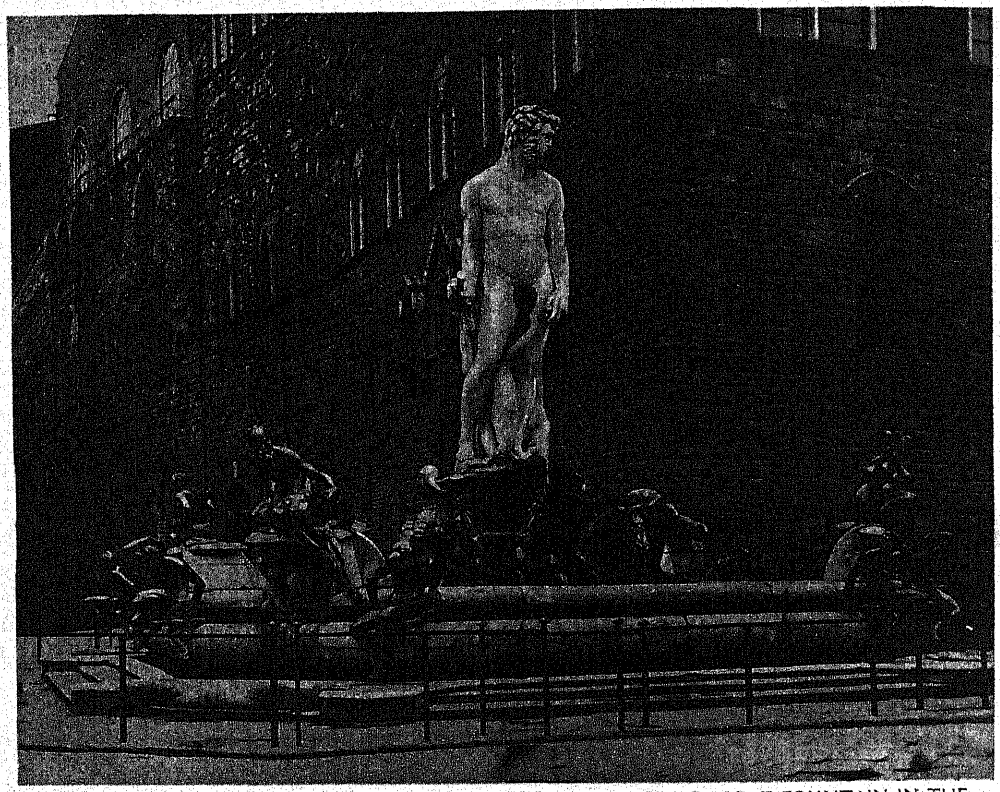
THE MAN WITH A JOKE AND A KIND WORD FOR ALL ABOUT HIM

All Donatello's statues are famous. They are beautiful in themselves, but they are important because of the effect they have had on later sculpture. He had closely studied the glorious work of the ancients, and he reproduced their methods, stamped with his own genius. Until his day men had been content to let statues be part of the buildings to which they belonged, as a cornice or a scroll is part of a building. Donatello made them actual portraits in stone, things of life and beauty, independent of their surroundings; figures whose merits command attention and admiration.

He had a joke and a kind word for everybody who deserved them, but once, when a niggardly man complained that the sum charged by Donatello for a great head amounted to a shilling a day for a month, he took his hammer and smashed his work to pieces. It was not that he cared

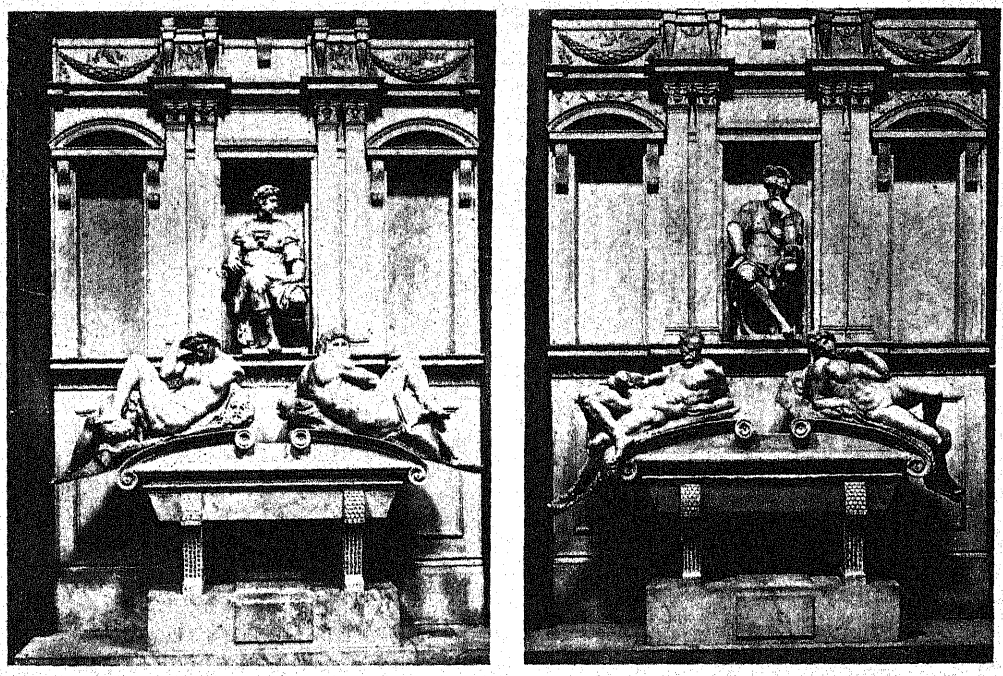
WALLS & STREETS OF FLORENCE

AN ANGEL BY LUCA DELLA ROBBIA ON THE WALL OF A LITTLE CHAPEL IN THE CHURCH OF SANTA CROCE

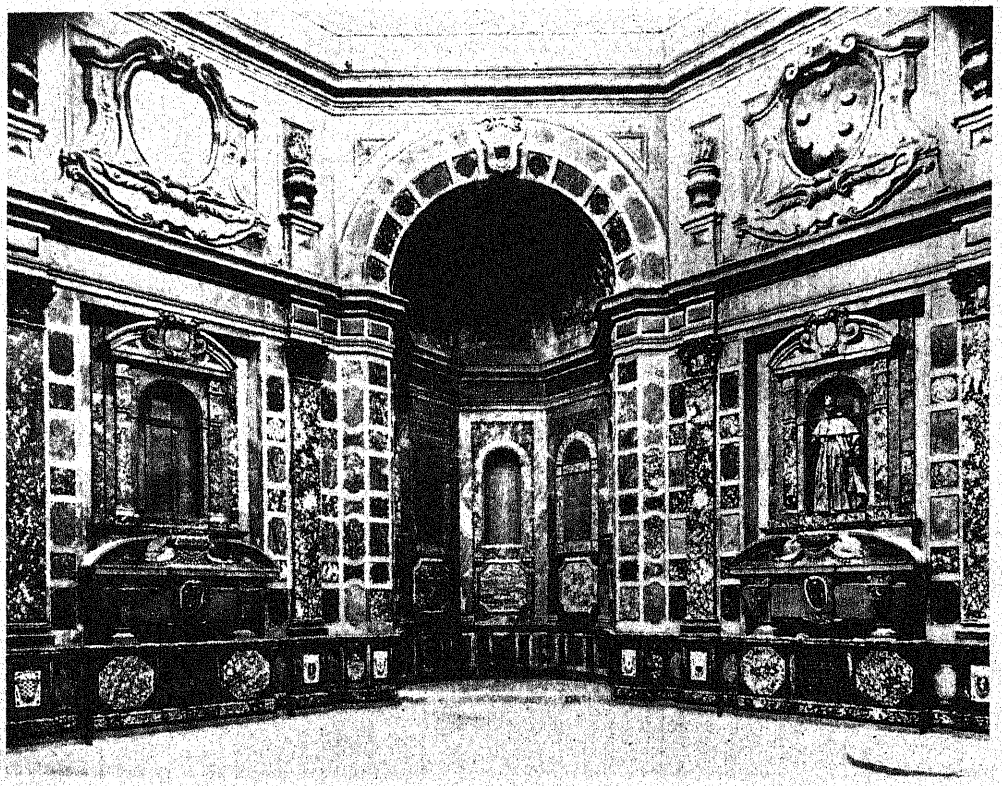


THE FIGURE OF NEPTUNE, BY BARTOLOMMEO AMMANATI, ON THE GREAT FOUNTAIN IN THE SQUARE BY THE VECCHIO PALACE

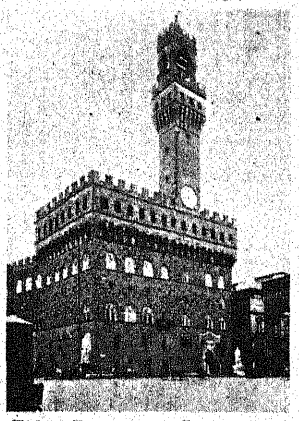
THE STRIKING FIGURES BY GIOVANNI BOLOGNA ON THE GREAT FOUNTAIN



THE FAMOUS FIGURES BY MICHAEL ANGELO ON THE MEDICI TOMBS

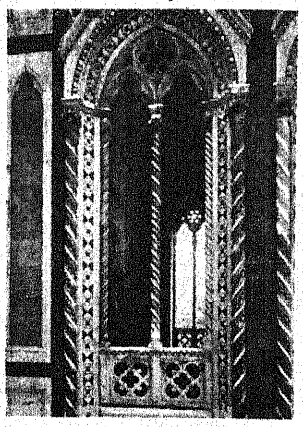


THE INTERIOR OF THE MEDICI CHAPEL

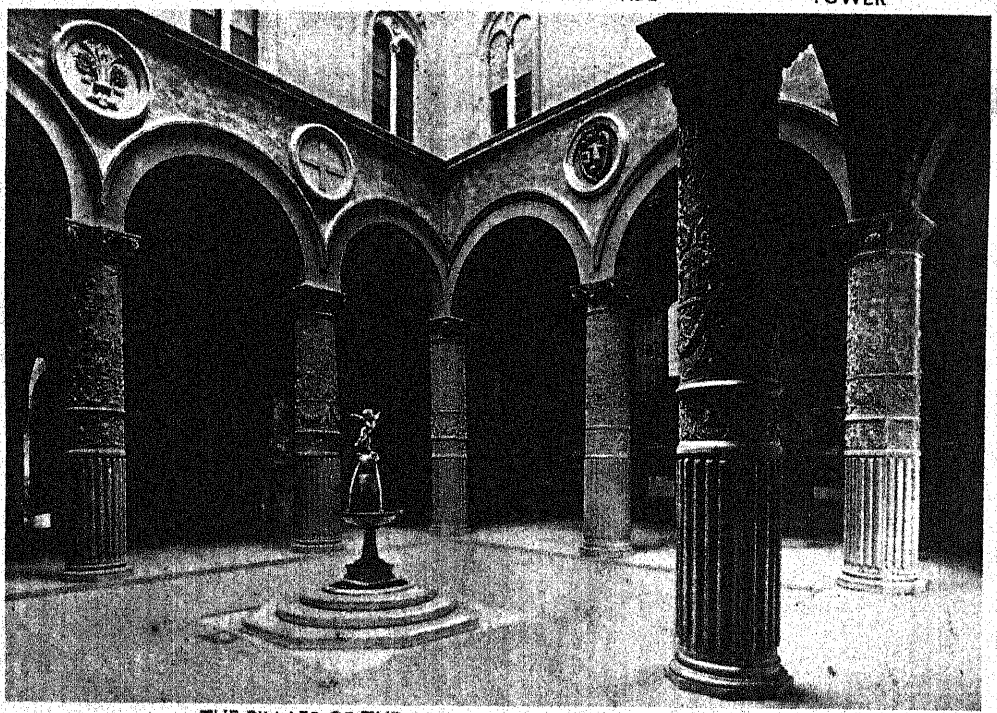


THE VECCHIO PALACE, BUILT 600 YEARS AGO

THE BAPTISTERY FOR WHICH GHIBERTI'S GATES WERE MADE



A WINDOW IN GIOTTO'S TOWER



THE PILLARS OF THE COURTYARD OF THE VECCHIO PALACE

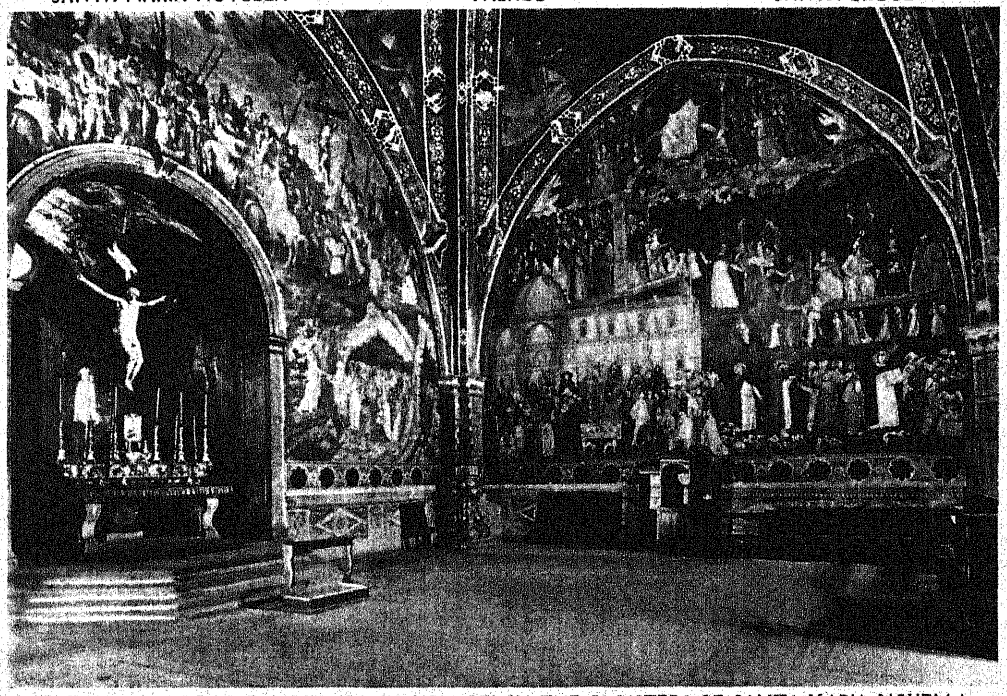
A BRIDGE ACROSS THE ARNO, LINKING THE TWO PARTS OF FLORENCE

PONTE VECCHIO, THE OLDEST BRIDGE IN FLORENCE

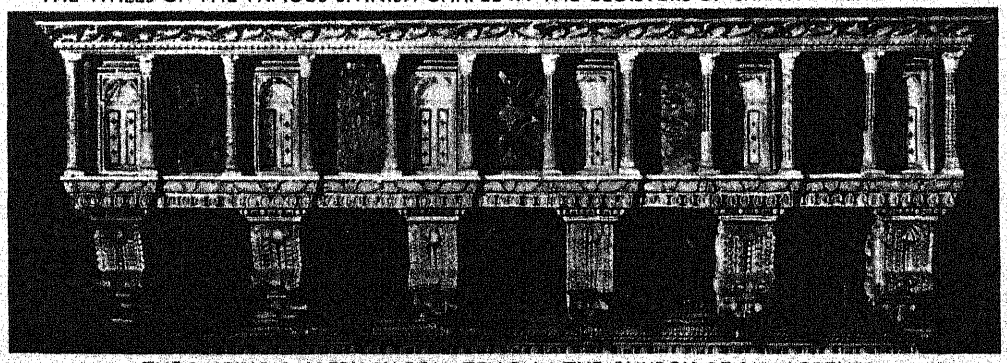
MADONNA AND CHILD—BY BENEDETTO MAJANO, IN SANTA MARIA NOVELLA

LORENZO MEDICI AS ONE OF THE MAGI, IN THE RICCARDI PALACE

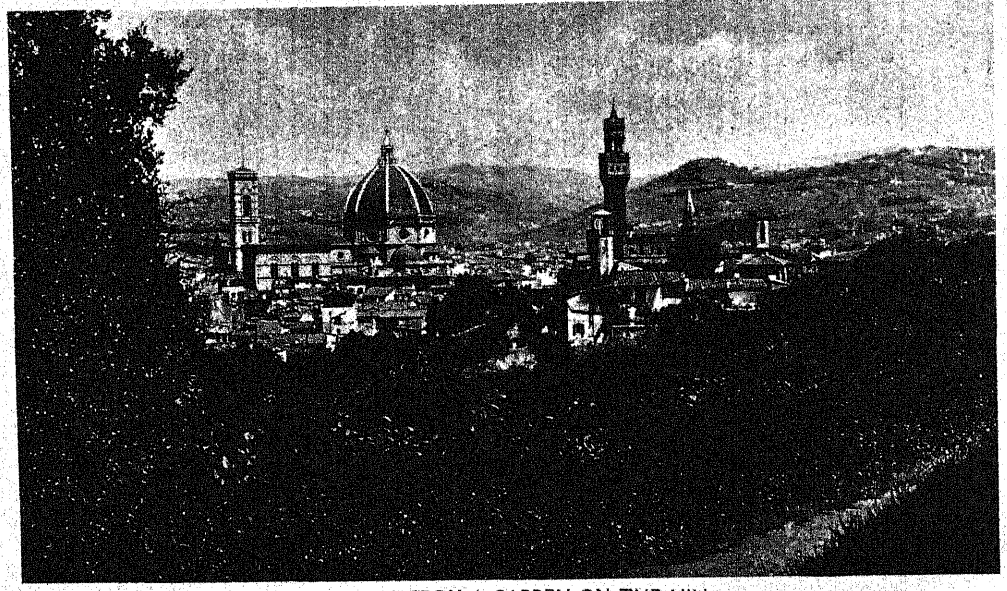
DONATELLO'S SCULPTURE OF THE ANNUNCIATION, IN SANTA CROCE



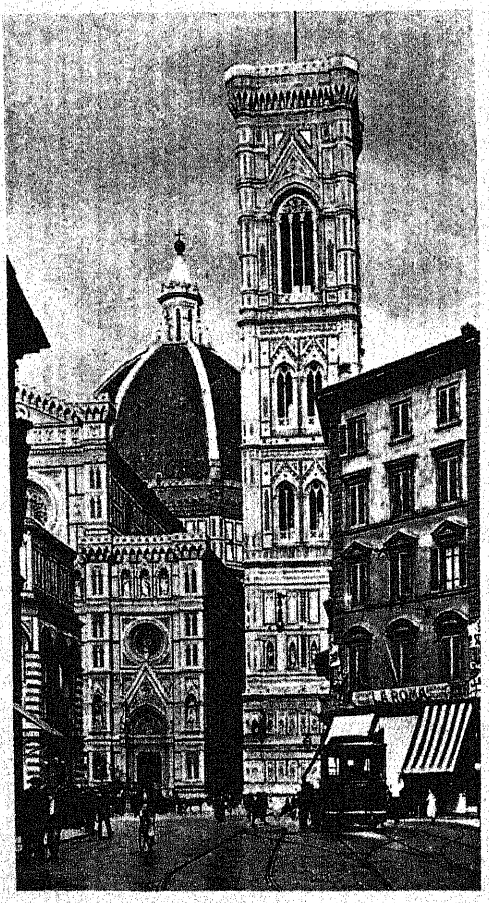
THE WALLS OF THE FAMOUS SPANISH CHAPEL IN THE CLOISTERS OF SANTA MARIA NOVELLA



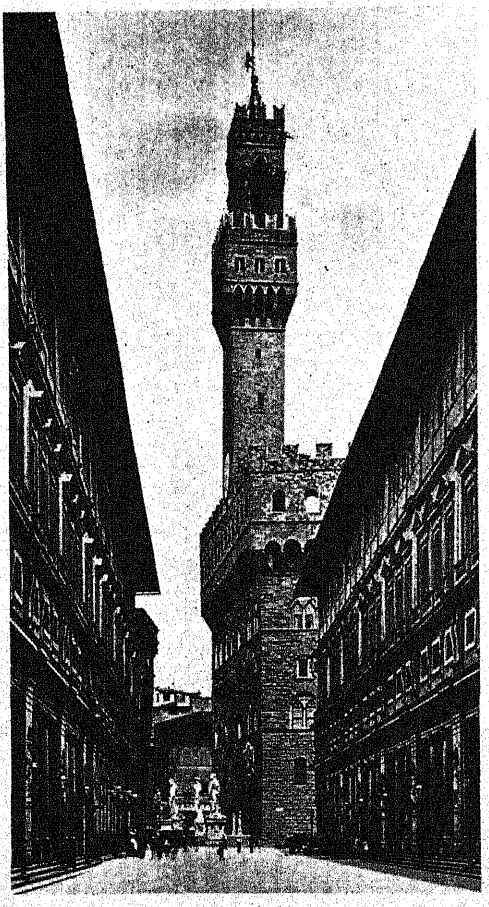
THE SINGING GALLERY BY DONATELLO IN THE CHURCH OF SAN LORENZO



FLORENCE FROM A GARDEN ON THE HILL



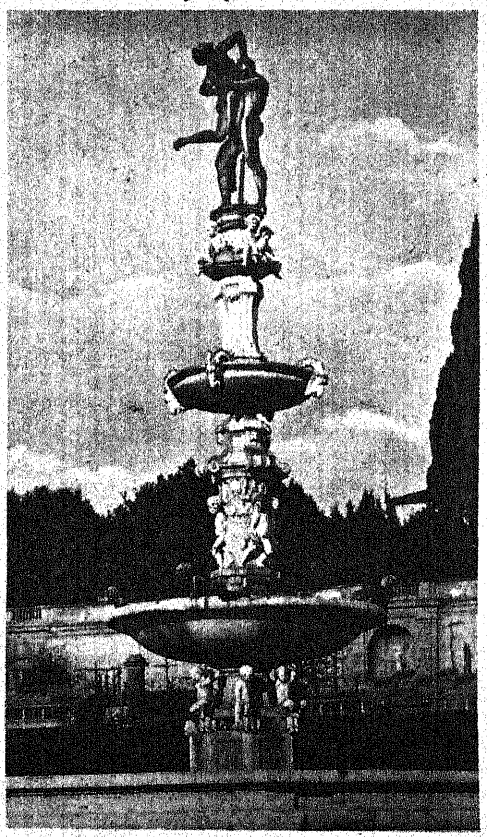
GIOTTO'S TOWER



THE TOWER OF THE VECCHIO PALACE

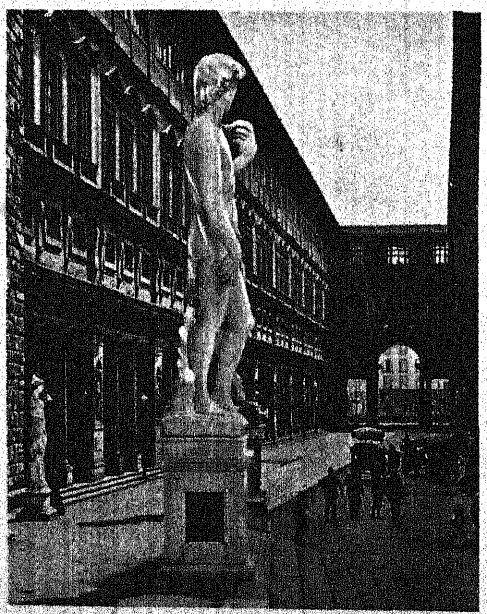
THE ROOFS OF FLORENCE. WITH SAN CROCE ON THE RIGHT

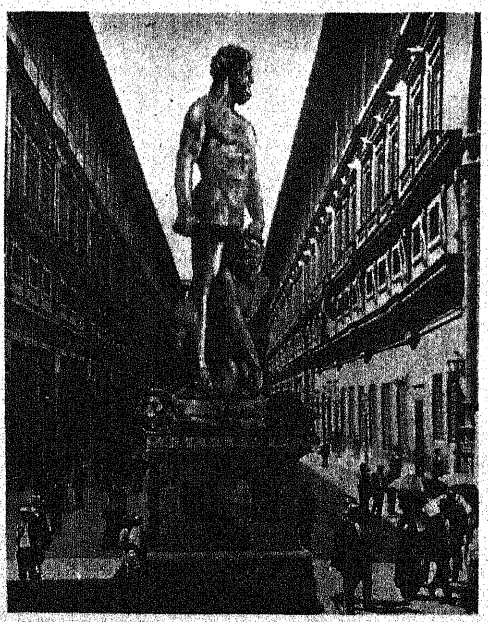
BRUNELLESCHI'S WONDERFUL DOME TOWERING ABOVE THE RED ROOFS OF FLORENCE



A FOUNTAIN IN A GARDEN NEAR FLORENCE

MICHAEL ANGELO'S DAVID LOOKS DOWN ON FLORENCE





THE MONUMENTS THAT MEET THE EYE AT EVERY TURN IN THE STREETS OF FLORENCE

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anything about money. All he earned he used to put in a basket, and hang up in his workshop, so that his friends and workmen could help themselves without troubling to ask him. He lived through a happy old age. The next man of genius to carry on the work of making Florence beautiful was the great sculptor, Luca della Robbia.

THE DELLA ROBBIA BOYS WHO WERE TO BECOME IMMORTAL IN THE WORLD

He was born in Florence in about 1400, and for about a century he and his successors, known everywhere as the Della Robbias, were famous in the art world of Italy. They belonged peculiarly to Florence, living in a house which Luca had bought. Vasari, the great historian of Italian artists, makes a special point of Luca's education. Other boys were taught to read and write, he explained, but Luca della Robbia, fortunate youth, was also taught arithmetic!

Like many other sculptors, Luca began his career in a goldsmith's shop. There he learned to model in wax, and passed from that stage to shaping objects in bronze and marble.

Luca's first important work for Florence was the carving of a beautiful gallery in the cathedral to face the singing gallery sculptured a few years earlier by Donatello. So here we see what the Florentines thought of their new and wonderful genius, for they set him in rivalry with one of the greatest sculptors of all Italy.

He carved a happy band of singing girls and little dancing boys along the marble gallery. They are so merry and free that when we look at them we forget they are in marble, and listen for the soft music coming from their lips; we can hear their bare feet tap lightly, like leaves in the wood, as they pass along. The people of Florence looked from one gallery to the other, and could not decide for a long time which they loved more, Donatello's little cherubs or Luca's singers. In the end they decided that Luca's were the better because they were the more harmonius, taken altogether.

HOW DELLA ROBBIA REWARDED THE KIND-HEARTED PEASANTS

Luca's next work was on Giotto's Campanile. Here he was asked to carve five ships to finish a series begun by Andrea Pisano. He did these in one year, and the next year set to work on two altars for the cathedral.

He was a quick sculptor. He saw at once what was wanted, and did it. All kinds of work done by him went to make Florence beautiful. Happy Florentines, to have such a lovely city for their home! Like most geniuses, Luca never spared himself. On one occasion he toiled himself into an illness, and was persuaded to go to a little place in the hills called Gavinana for a rest. The good folk of the village were quite overwhelmed at having him among them. They nursed him as if he had been an angel, and refused to be paid, saying in their pretty way that they were in debt to him for the honour paid them in coming to live in their village. Luca was not to be beaten in this battle of chivalry. He sent them two beautiful panels for their church, and the village folk made a holiday and a procession on the day they came.

There was one piece of work for Florence at which Luca spent part of his time for about twenty-one years, and that was the decorating of the bronze doors for one of the sacristies of the cathedral. The master worked at this with Michelozzo. It was a formidable task. The door had ten divisions, with a relief in each, and other decorations for the corners and the space above the doors.

A CLEVER FAMILY AND THE WORK BY WHICH THEY ARE REMEMBERED

Luca also made many lovely little statues and separate pieces of relief for various churches. Much of his time was given to his special work in what is called glazed terracotta. Luca first moulded his figures in terracotta and then he covered them with a kind of enamel which he is said to have invented. The same sort of enamel had been used in Persia two hundred years before, but Luca did not know that, and he was rejoiced and proud when his new method of glazing terracotta became a success.

He took his nephew Andrea into his service to work at this terracotta, and Andrea had seven sons, five of whom became artists in the same workshops. An immense store of beautiful things for Florence was made by this gifted family for three generations. Andrea inherited his uncle's workshops and properties, and was second to him in genius.

Andrea's two other sons became Dominican monks in order to follow Savonarola, and there they must have met Fra Bartolommeo and talked of dear Fra

Angelico, who also had been a member of the order.

Fra Bartolommeo and Fra Angelico enriched Florence with a long series of lovely paintings. While sculptors and architects made the shapes and perspectives of the cathedral city glorious to behold, painters like Fra Angelico had created beautiful visions on the walls of the interiors. Fra Angelico mixed up his love of Christ very beautifully with his love of beautiful lines. He was known as the saintly painter, and had more imagination than is given to most artists, for he saw himself *daring to paint God*, and he prayed while he worked, and worked while he prayed.

Fra Angelico was born in 1387, in a house not far from Giotto's home. He was apprenticed as a painter, and when at the age of twenty he became a monk, he was ready to go on with his work. All his life he was humble, and cared nothing for honours. He used to say that true riches consist in being content with little. He gave his years to his "holy painting," counting neither time nor labour, giving of his best to God.

THE MONK WHO COVERED CHURCH WALLS WITH PICTURES OF ANGELS

His most beautiful works were altar-pieces and wall-panels for churches and convents in Florence. They were of a richness we can only partly understand, for, although a very great number of his pictures are still treasured in Florence, time has dimmed their glory. But we can imagine what it was like to live in Florence and go to church one day and see over the altar a heavenly picture of angels ascending and descending a place about the Throne.

In 1434 Cosimo Medici rebuilt the old convent of San Marco for the monks, and when they went to live there Fra Angelico commenced his great work of decorating the convent walls. Many of these frescoes are still preserved in Florence. The convent must have been a glorious sight when they were finished, and after Fra Angelico had passed away at the age of 68 painting almost to the end, Fra Bartolommeo must have looked at them in wonder and reverence.

Fra Bartolommeo had not the quiet, happy life of the older monk. He was born a poor boy, the son of a muleteer, in 1475. When he was nine he began to work for painters, grinding colours for his elders.

He was a gentle, affectionate soul, and all his companions loved him. Bartolommeo only became a monk after the sad death of Savonarola, whom he had almost worshipped, and for four years he refused to touch a brush. Then, his prior urging him, he began to consider. He remembered that Savonarola had once said that painting and architecture were the best employments for monks who were not by nature preachers or students.

BARTOLOMMEO AND THE IMMORTAL MASTERS HE WENT TO SEE

Before Fra Bartolommeo had been at work very long, Raphael came to Florence, and he saw a picture the monk had painted a few years earlier on a hospital wall in Florence. It was a magnificent scene of the Last Judgment, and Raphael was amazed at its strength and richness. These two painters had a great effect on each other, and each learned something of the other's style.

There was another great figure about this time working at the decoration of Florence. Leonardo was busy on his fresco for the Council hall, and Fra Bartolommeo watched his drawing with an absorbed interest. Then, when the great Raphael and the great Leonardo had both, in a way, touched his brush, Bartolommeo began to paint in a way which made Florence proud of her monk-artist. He made some lovely pictures for Savonarola's cell and other rooms in the convent. Presently he got leave to go to Venice, and there he looked at Titian's and Giorgione's work, and was amazed, and felt that he himself could never do anything worth the doing.

THE PORTRAIT THAT KEEPS GREEN THE MEMORY OF TWO GREAT MEN

But after he returned Bartolommeo began painting pictures for various churches. It happened that Leonardo, Michael Angelo, and Raphael had all left Florence, and Fra Bartolommeo was now her greatest painter. He went into a kind of partnership with a friend of his boyhood, and the two worked together for three years very happily, painting pictures for the convent church and for various places in Florence.

The last big picture the monk painted was a great altar-piece for another convent in Florence; but before he laid down his brush, death overtaking him, he painted once more a portrait of Savonarola, which is known today throughout the world.

THE DISCONTENTED FIR TREE

FAR away in the deep forest there once grew a pretty fir tree; the sun shone full upon him, the breeze played freely around him, and in the neighbourhood grew many other fir trees. But the little fir tree was not happy.

"Oh, that I were as tall as the others are," sighed the little tree; "then I should spread out my branches and look out over the wide world around!"

The wood-cutters came in the autumn and felled some of the largest of the trees. This happened every year, and our young fir, who was by this time a tolerable height, shuddered when he saw those magnificent trees fall with a tremendous crash to the earth. They were laid in wagons, and horses drew them away.

Where could they be going? What might be their fortunes?

So next spring, when the stork returned from abroad, the tree asked him, saying: "Know you not whither they are taken?"

The stork looked thoughtful; then he nodded his head, and said:

"As I was flying from Egypt to this place I met several ships with splendid masts. I have little doubt that they were the trees you speak of; they smelled like fir wood. They sailed gloriously."

"Oh, that I, too, were tall enough to sail upon the sea!" sighed the fir tree.

"Rejoice in thy youth!" said the sunbeam. "Rejoice in thy youth, in the fresh life that is within thee!"

And the wind kissed the tree, and the dew wept tears over him; but the fir tree understood them not.

When Christmas approached many quite young trees were felled; their branches were cut off, and they were taken away.

"Where are they going?" asked the fir tree, greatly interested.

"We know! We know!" twittered the sparrows. "We peeped in through the windows of the town below! We looked through the window-panes and saw them planted in a warm room, decked out with such beautiful things—gilded apples, sweetmeats, toys, and hundreds of bright candles!"

"And then?" asked the fir tree, trembling in every bough. "What happened then?"

"Oh, we saw no more! That was beautiful beyond compare!"

"Is this glorious lot destined to be mine?" cried the fir tree with delight. "This is far better than sailing over the sea. How I long for Christmas!"

"Rejoice in our love!" said the air and the sunshine. "Rejoice in thy youth and thy freedom!"

But rejoice he never would. He grew and grew, in winter as in summer. The people who saw him said, "That is a beautiful tree!" and next Christmas he was the first that was felled. The axe struck sharply through the wood, and the tree fell to the earth with a heavy groan. He suffered an agony, a faintness, that he had never expected. He quite forgot to think of his good fortune, he felt such sorrow at being compelled to leave his home. Neither did he find the journey by any means pleasant.

When the tree first came to himself he was in a large, handsome room. He was planted in a large cask filled with sand and hung with green cloth, and placed upon a carpet woven of many gay colours. Oh, how the tree trembled. What was to happen next? A young girl, helped by the servants, now began to adorn him.

Upon some branches they hung little nets cut out of coloured paper, every net filled with sugar-plums; from others gilded apples and walnuts were suspended; and more than a hundred little wax tapers, red, blue, and white, were placed here and there among the boughs. Dolls seemed to be dancing to and fro among the leaves; and highest of all was fastened a large star of gold tinsel.

"This evening," they said, "it will be lighted up."

"Would that it were evening!" thought the tree. "Would that the lights were kindled, for then—what will happen then? Will the trees come out of the forest to see me? Will the sparrows look in through the window-panes?"

At last the candles were lighted, and then both folding-doors were flung open, and a troop of children rushed in. They stood quite silent, but only for a moment; then they shouted with joy till the walls re-echoed the sound.

The children danced and played with the beautiful things from the tree, and no one thought any more of the tree himself except the old nurse, who came and peeped among the boughs; but it was only to see whether, perchance, a fig or an apple had been left among them.

"A story! A story!" cried the children, pulling an old man to the tree.

And then the old man told the story of Humpty Dumpty, who fell downstairs, and yet came to the throne and won the princess for his wife.

The fir tree stood meanwhile quite silent and thoughtful; the birds in the forest had never related anything like this. "Humpty Dumpty fell downstairs, and yet was raised to the throne, and won the princess!" "Ah! Who knows but what I may fall downstairs and win a princess?"

In the morning the maids came in.

"Now begins my state anew!" thought the tree. But they dragged him out of the room, up the stairs, and into an attic-chamber, and there thrust him into a dark corner where not a ray of light could penetrate. "What can be the meaning of this?" thought the tree. And he leaned against the wall, and thought, and thought. And plenty of time he had for thinking it over, for days and nights passed away, and yet no one ever came into the room. At last somebody did come in, but it was only to push into the corner some old trunks. The tree was now entirely hidden from sight and apparently forgotten.

"It is now winter," thought the tree. "The ground is hard and covered with snow; they cannot plant me now, so I am to stay here in shelter till the spring I only wish it were not so dark and so dreadfully lonely! Oh, how pleasant it was in the forest when the snow lay on the ground!"

"Squeak! Squeak!" cried a little mouse, gliding forward. Another followed; they sniffed about the fir tree, and then slipped in and out among the branches.

"It is horribly cold!" said the little mice. "Otherwise it is very comfortable here. Don't you think so, old fir tree?"

"I am not old," said the fir tree; "there are many who are much older than I am."

"How came you here?" asked the mice, "and what do you know? Tell us about the most delightful place on Earth. Have you been into the store-room, where cheeses lie on the shelves and bacon hangs from the ceiling, where one goes in thin and comes out fat?"

"I know nothing about that," said the tree, "but I know the forest, where the sun shines and the birds sing!" And then he spoke of his youth and its pleasures. The little mice had never heard anything like it; they listened attentively, and said: "How much you have seen! How happy you have been!"

"Happy!" repeated the fir tree, in surprise; and he thought a moment over

all he had been saying. "Yes, on the whole, those were pleasant times!" He then told them about the Christmas Eve when he had been decked out with cakes and candles.

"Oh," cried the little mice, "how happy you have been!"

The next night the little mice came again, and brought with them four other little mice, who also wanted to hear the tree's history; and the more the tree spoke of his youth in the forest the more vividly he remembered it, and said: "Yes, those were pleasant times, but they may come again. Humpty Dumpty fell downstairs, and yet, for all that, he won a princess; perhaps I, too, may win a princess." And then the fir tree thought of a pretty, delicate little birch tree that grew in the forest, a real princess was she to the fir tree.

"Who is this Humpty Dumpty?" asked the little mice. Whereupon he related the tale.

But at last the mice all scampered away, and the tree sighed: "It was pleasant when they sat round me listening to my words. Now that, too, is all past! However, I shall have pleasure in remembering it when I leave this place."

But when would that be? One morning people came and turned out the lumber-room; the trunks were taken away, and the tree was thrown on the floor. Then a servant carried him downstairs.

"Now life begins again!" thought the tree. He felt the fresh air, the warm sunbeams—he was out in the court. The court joined a garden, where everything was fresh and blooming.

"I shall live! I shall live!" He was filled with delightful hope; he tried to spread out his branches, but, alas! they were all dried up and yellow. He was thrown down upon a heap of weeds and nettles. The star of gold tinsel that had been left fixed on his crown now sparkled in the sunshine.

Some merry children were playing in the court, the same who at Christmas-time had danced round the tree. One of the youngest now perceived the gold star, and ran to tear it off.

"Look at it, still fastened to the ugly old Christmas Tree!" cried he, trampling upon the boughs.

And the tree looked on all the flowers of the garden, and wished he had been left to wither alone in the dark corner of the lumber-room. He called to mind his happy forest life, the merry Christmas Eve, and the little mice who had listened so eagerly when he related the story of Humpty Dumpty.

"Past! All past!" said the poor tree. "Had I but been as happy as I might!"

And then the servant came and broke the tree into small pieces, heaped them all up together and set fire to them, and the poor fir tree was no more.

COMMENT FUT DÉCOUVERT LE VOLEUR

This is a French translation of the story told in English on page 415

MOSTAFA, un sage et riche marchand de Damas, n'avait qu'un fils, Said, qu'il voulait former à la prudence; mais Said avait un excès de confiance à l'égard d'un jeune Arménien, qui s'arrangea à le tromper plusieurs fois sans jamais éveiller ses soupçons.

Un jour Mostafa et Said furent obligés de se rendre à Bagdad pour affaires.

"Et maintenant, à qui vais-je confier mon argent pendant notre absence?" dit le marchand.

"À mon ami l'Arménien sans hésitation," répondit son fils. "C'est l'homme le plus honnête de Damas."

"Très bien," reprit le marchand. "Pour cette fois je m'en rapporte à ton jugement."

Il donna à son fils un grand et lourd coffre-fort pour le confier à la garde de l'Arménien, et quand Said revint il l'emmena à Bagdad. Deux mois plus tard ils rentrèrent à Damas, ayant gagné une grosse somme d'argent dans le commerce.

"À présent, mon fils," dit Mostafa, "va chercher mon coffre-fort chez ton ami."

Said se rendit chez l'Arménien, et revint très en colère.

"Vous avez insulté mon ami," s'exclama-t-il. "Il dit que ce n'est pas de l'argent que vous lui avez confié, mais un amas de pierres!"

"Mais comment ton ami découvrit-il qu'il n'y avait que des pierres dans mon coffre?" dit Mostafa. "Il faut qu'il ait forcé les trois verrous, et je pense que ceci va te prouver que j'ai eu raison de ne rien lui confier de valeur."

Said baissa la tête et se laissa désormais guider dans ses jugements sur l'humanité par l'expérience et la sagesse de son père.

LITTLE STORIES ABOUT FLOWERS

Almost every flower has a story, almost every place has a legend, and many flowers have many stories. They are made up, perhaps, as the legends are, but they are often very beautiful, and it is interesting to know the stories that have been told for hundreds of years about the flowers we know so well that bloom in our fields and gardens as the seasons come and go.

WHY THE CONVOLVULUS TWINES

In the very beginning, when all the flowers were made together, the convolvulus had a great friend.

The two would twine around each other, kissing and embracing through the pleasant sunny days, idly swaying this way and that as the wind blew them, and keeping time with the rippling of the brook.

But one day a thunderstorm arose, and the gale blew the friends asunder, while the convolvulus was struck blind by the lightning. From that day the little flower wandered in search of its friend, and even now, when it comes up to another plant, it twines its arms about the stem, as if hoping to find its long-lost friend.

THE CHRYSANTHEMUM

In the Black Forest lived a peasant named Hermann. Going home one Christmas Eve he saw a little boy lying in the snow. He carried him to his wife and children, who gladly shared with him their little feast. All night the boy remained in the hut, and in the morning He revealed himself as the Christ-child, and then vanished from their sight.

When Hermann next passed the place where he had found the Child wonderful flowers were growing out of the snow. Gathering a handful, he gave them to his wife, who called them chrysanthemums, meaning Christ-flowers, or, more correctly, gold-flowers.

Ever afterwards on Christmas Eve a part of the feast in Hermann's house was set aside for some poor child in memory of their divine Guest.

THE ROSE OF JERICHO

The rose of Jericho is also known as the Resurrection flower, for it is supposed to have the property of dying and coming to life again. How it came to be called by this name is described in a very pretty legend.

When the infant Jesus fled from Bethlehem with His mother Mary and Joseph to avoid the massacre of all the young children by King Herod the party is said to have crossed the plains of Jericho. When Mary alighted from the ass on which she was riding this little flower sprang up at her feet to greet the infant Saviour whom she carried in her arms, and it is said that flowers sprang up at all the places where the Holy Child rested.

All through the Saviour's life on Earth the little roses of Jericho continued to flourish, but when He died upon the Cross these flowers withered and died. Three days later, however, our Lord rose again from the tomb, and at the same time the roses of Jericho came to life, and sprang up and blossomed as an emblem of the joy of the Earth because Christ was risen.

THE PANSY

The charming name which many little English country girls have given to the pansy is Three-Pretty-Faces-Under-One-Hood. The little French country girls, however, call it Trinity Herb. At first, they say, the pansy had a sweeter and more delicious scent than its sister the violet. It grew in the wheatfields, and it was much beloved because of its beautiful colours and exquisite fragrance, and people used to trample down the wheat in order to pick it.

The result was that when harvest-time came there was no corn. This grieved Three-Pretty-Faces-Under-One-Hood, and one springtime she prayed to the Trinity that she might be deprived of her sweet scent so that nobody would destroy the growing wheat for her sake. Her prayer was granted, and from that time the pansy has been called Trinity Herb by the little French country maids.

THE ROSE

In the days of the ancient gods there lived in the Greek town of Corinth a lady whose name was Rhodanthe. She was very beautiful, and her house was constantly besieged by kings and lords who were eager to win her love.

In order to escape from her lovers Rhodanthe fled for refuge into the temple of the goddess of purity, Artemis. But her lovers followed her, and the people of Corinth helped them to break open the gates of the sacred temple.

Artemis was angered by the outrage. She changed Rhodanthe into a red rose, and this flower is still coloured with the blush which spread over Rhodanthe's lovely face when she was exposed to the gaze of her lovers. The breakers of the temple were changed into the thorns which now guard the beauty of Rhodanthe.

THE YOUTH OF HEREWARD THE WAKE

LET those who would read of the defence of Ely and the yielding to King William turn to history books or Charles Kingsley's novel. We tell here not the valorous tale of the hero's manhood, but those stories about his youth which the Saxon peasants loved to recount on a winter's evening.

Hereward was a strapping boy, extraordinarily strong, and with a fine bearing. He had flaxen hair; one of his eyes was blue and the other grey. He was rough, good-hearted, and mischievous. He found no favour in the eyes of his father, Earl Leofric of Mercia, who was a hard, ambitious man, and he disappointed his mother, the saintly Lady Godiva, who had always greatly hoped that this second son of hers would become a monk.

Hereward cared nothing for learning and little for church observances. He was the leader of a band of youths who spent their time in field sports and horseplay. The story of their doings reached Leofric's ears, and he summoned Hereward to come to court, where the earl attended on King Edward the Confessor.

Hereward did not like the loss of his country freedom, or his father's harshness, for the courtier rode the high-spirited boy with a very heavy hand on the rein. Nor did he like the king's Norman favourites and the priests who swarmed about him.

Hereward did not scruple to speak his thoughts and to play the roughest tricks on these people. His doings became a scandal, and one day the earl appeared before the king in a great rage, asking for a writ of outlawry against his son.

HEREWARD SLIPPED BETWEEN THE BEAR AND THE GIRL

The courtiers were astonished, shocked, and a little relieved. But Earl Godwin, Leofric's oldest enemy, was moved to pity. He said that it would be a base thing to outlaw a lad of seventeen who had done no crime.

At that Hereward's pride flamed up; he would not be championed by his father's foe.

"I'll take no favour from a Godwin," he cried; "no, nor from anyone! I'll go; I'll make my own name and fortune. Beware lest an hour come when you need my help, for you shall not have it."

With this seemingly absurd threat the boy shook the dust of Mercia from his feet. One man went with him, Martin Lightfoot, who left the earl's service to follow the outlawed son.

Hereward sailed to Whitby and sought out his godfather, Gilbert of Ghent, whose castle was a kind of college for young men who wished to be knights. There were several Normans and Flemings there, but Hereward surpassed them all in every manly exercise, for which they did not love him.

In the castle courtyard a large white bear was kept, chained and caged. It resembled Gilbert's crest, and rumour said that it was his kinsman. It was feared, and called the Fairy Bear.

One day, when Hereward returned from hunting, he found no one to open the courtyard door to him, but he burst the latch and came in. Then he saw a dreadful thing. In the midst of the courtyard was the bear, its broken chain dangling from its neck. The only other creature there was a little girl, who beat against a closed door, beseeching those within to open for mercy's sake.

The bear began to run toward her. Hereward slipped between, and then dodged the creature's charge at himself. By now the boy had had time to unfasten his short axe, and he brought it down on the bear's skull with such force that the beast fell dead.

Then, calling in Martin, he propped the carcase up by the door, and bade the little girl call to the castle folk to come out, for all was safe.

The door was opened, but when the precious gallants within saw the monster they screamed and fled, trampling on one another in their panic.

Now, for fear lest Gilbert should seek vengeance for the bear's death, Hereward went to Cornwall, to the court of King Alef. This monarch's daughter was betrothed to a young Danish prince who had conquered Waterford, in Ireland. But by-and-by Alef thought it would be more profitable to wed her to an ugly giant who ruled a Pictish clan.

From the day that this announcement was made Hereward saw the princess grow more and more white and wretched. His heart was moved to pity. He found a chance to quarrel with the giant, who challenged him to a duel. The monster was slain, but Picts and Cornishmen set upon Hereward, and flung him into prison. He was to die on the morrow.

At night the princess came and released him. "Sir," she said, "you have delivered me once. If you will serve me further go to my betrothed, Sigtryg, and bid him come for me quickly, since my father is determined against this alliance, which he once blessed."

Hereward had to go warily, to hide, to make bold rushes, but at length he reached Waterford. Sigtryg was astounded at the news, and he immediately provisioned a ship for the voyage. When they reached Cornwall he sent forty of his men on ahead with gifts and peaceful messages. They did not return.

Then Hereward stained his face, and put on rags, and went to Alef's palace as a harper. He found the place in a bustle of preparation and excitement, for the princess was to wed the Cornish chieftain Haco on the morrow.

Hereward played and sang so well at the feast that the bridegroom offered him any boon he chose. The harper asked for a cup of wine from the hands of the princess. As the pale damsel received it back she saw at the bottom a ring she had given Sigtryg.

That night, as the stranger slept with the servants on the straw in the hall, an old woman came and led him to the princess. She had been cheered by the sight of the ring, but she did not know that Sigtryg was at hand. She had heard of forty prisoners who were to be blinded tomorrow after the bridal, but she did not know whose messengers they were. Her joy at hearing that deliverance was at hand was so great that she could hardly speak to tell Hereward which way the wedding procession would go.

Next day they set off, bride and bridegroom, pages and courtiers, with the forty prisoners, who thought they were looking their last on the green earth. But as the party entered a narrow gorge an ambush burst out upon them. Most of the Cornishmen fled, and it was an easy task to free the princess and the Danes. Before Alef could come up they were on board, and had set sail for Waterford.

Sigtryg begged Hereward to stay at his court for ever, but that hero was restless, and, after all, he loved his Saxon kinsfolk. He returned, and began that long struggle with the Norman invaders about which we read in the history books.

THE GEESE THAT KEPT GUARD OVER ROME

ROME was besieged. A new and terrible enemy had swooped down upon her. These people came from the North. They were tall and fierce, with piercing blue eyes and flowing locks of glistening gold. They were called Gauls.

Fierce battles were fought in the city, and the legions of Rome found themselves driven back again and again. The Gauls were not only strong—they were fearless. They rushed on the Romans with terrible shouts, and tore their ranks in sunder.

At last the poor Romans were forced to retire to their last fortress, called the Capitol. They were safe here, for who would dream of climbing up the steep rock to force the mighty walls of the Capitol? But sad and dreadful was it for the Roman soldiers, though they were safe, to look over the walls of their fortress and watch the savage Gauls burning their homes and carrying off all their precious things.

The Romans began to be dreadfully hungry. Many a time they must have looked at the sacred geese which lived in the Temple of Juno and thought it would be no crime to kill and eat them. But the geese were sacred birds to the Romans. To kill them would be sacrilege.

Now, it chanced one night, as a brave young Roman named Manlius lay sleeping beside his sword, near the Temple of Juno, that a strange sound striking across his troubled dreams woke him suddenly, and made him grasp his sword and get upon his feet.

He recognised the noise at once. It was the hissing of the sacred geese. What could have roused those birds?

The noise increased; it became a tumult of alarm and panic; the whole flock was filling the night with its frightened cry.

Manlius ran to the walls of the fortress and looked down. He came face to face with a Gaul!

The leader of the Gauls had led his men up the cliff in a night attack, and he was just about to pull himself over the wall when Manlius appeared. In an instant Manlius seized the straining wrists of the Gaul, and, wrenching the fingers free of the parapet, hurled the enemy down the hill.

Louder and louder grew the night clamour of the geese. Romans started from their sleep, and, picking up their arms, hurried to see what it could be. They found Manlius defending the walls. With a shout of victory they rushed to his rescue, and in a few minutes all the garrison was roused and the Gauls were beaten back and utterly routed.

A French translation of this story appears on another page. See Index.

THE RING OF GREAT STONES

ON a barren plain, three miles from a river, there stands a ring of huge stones.

Perhaps they were once part of a Druid temple. Perhaps they were set up in the days of giants. Some folk are afraid to go near them at dusk, but there was once a boy to whom they were good friends.

His name was John, and he kept his flocks on the plain. The stones gave him the only shelter to be found. In the long, lonely days they almost became companions. He invented names for the monsters, and knew them all apart.

In his village there lived a sorcerer who understood the language of animals. One day he heard two birds gossiping in the rose bush under his window.

"Do you know," said one, "what will happen this Midsummer's Eve? The great stones will rise out of the earth at midnight, and rush down to the river to drink. Then they must return and thirst for another hundred years. That's not all. In the pits where they stood great heaps of treasure will be left revealed. But, if a man takes it, the gold and jewels will turn to dust by dawn unless he gives a human life in exchange."

The sorcerer immediately began to think whose life he could give the stones in exchange for their treasure. As John, the shepherd boy, had no parents and was very poor he seemed the safest victim to be found. First binding the boy to secrecy, the sorcerer told him how the stones would go to drink and leave the treasures unguarded; but he did not say that the stones demanded a human life from the thief. He told the boy to meet him by the stones at midnight.

At first John was very grateful to the sorcerer for this chance of making his fortune. But, as he leaned against a stone called Mighty, he began to think it was a treacherous thing to steal the stones' treasure while they slaked their thirst. He determined not to do it.

Then the brambles rustled, and there peered out a queer child, with furry ears and bright black eyes. He said: "You

are quite right, John! But the stones love you, and gladly give you leave to take some of their wealth. Only you must cut a long trail of honeysuckle from the bush by the ford and lay it by this stone. You shall only take treasure from the pit where this same stone was standing. Tell no one what you have just heard."

With a light heart the boy hastened to do as he was told.

That night, a little before the appointed time, he went across the plain. Already the sorcerer cowered in the bushes. At midnight a cloud veiled the sky. A wailing wind sprang up. The earth shuddered and heaved. There was a clap of thunder, and the great stones rose out of the earth and rushed across the plain.

John hurried to the pit where the trail of honeysuckle lay. It was deep, but he saw something glittering below. He leaped down. The sorcerer had brought seven sacks, but John was content to fill his pockets with jewels worth a king's ransom. He was dazzled by what he saw; the pit was glowing with the gems' own radiance.

Very soon, it seemed, he heard the rumble of thunder sweeping toward him, and hammer blows, as of mountains clashing together. The stones were returning.

Now John realised that the steep sides of the pit were as hard and slippery as iron. It was impossible to get out. He could hear the sorcerer shrieking from another pit. They would both be killed.

Then, in a flash of lightning, he saw the furry-eared boy standing on the rim of the pit lowering the trail of honeysuckle down to him. John grasped it, and was hauled to the upper ground by the fairy rope. He had barely time to leap aside before the stones sank into their place with sullen groans. Then there fell upon them the silence of a hundred years.

The sorcerer was never seen again, but no one in the village mourned for him. As for the youth, though he became a wealthy landowner and kept sheep on the plain no more, he often came and sat in the shadow of the stones, for, even before they enriched him, he had possessed one great treasure of his own—a grateful heart.

STORIES TOLD BY THE BUDDHA

THE OTTERS AND THE JACKAL

As two otters were standing together on the banks of the Ganges a great fish came swimming through the water. One of the otters seized it by the tail. But the fish was so strong that he could not land it by himself.

"Help me!" he cried. "This fish is too strong for me. It will get away."

The second otter came to the rescue, and they managed to kill the fish and land it. Then they began to quarrel as to which should have it.

"It's my fish," said the first otter. "I caught it!"

"No, you didn't," said the other. "If I hadn't come it would have got away. It belongs to me."

A jackal came up to see what the two otters were quarrelling about, and they asked him to decide the case. The jackal cut off the fish's head, and then its tail, and said: "In my opinion the spoil ought to be divided equally, as both of you are equally entitled to it."

Thereupon he gave one otter the head and the other the tail, and ran off with the middle part.

"Stop! Stop!" exclaimed the otters. "You've taken the only part of the fish that is worth eating!"

"I can't help that," said the jackal. "When you call in a lawyer you must pay his fee. If you wanted the fish you should have settled the matter yourselves."

Never go to law if you can avoid it.

THE MONKEY AND THE PEAS

The King of Benares, who was already very powerful, resolved to make war on a barren country in which only a few poor people dwelt.

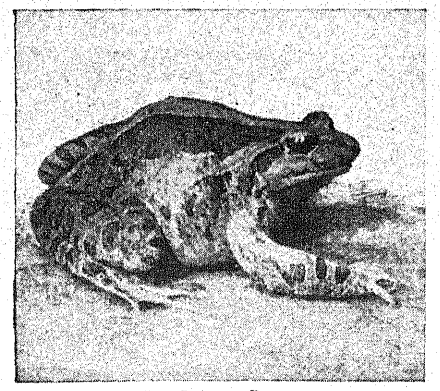
But on the way he saw an amusing sight. Some horsemen had boiled peas for their horses, and a monkey jumped down from a tree, seized a handful of peas, climbed up again, and began to eat.

One pea, however, rolled out of his hand and tumbled to the ground. The silly monkey looked at it greedily, and then, letting all the other peas fall, he climbed down the tree and hunted for the one that had first dropped. But a man ran after him, and he had to leave all the peas; and he climbed up the tree again, looking as glum as a man who had lost a kingdom.

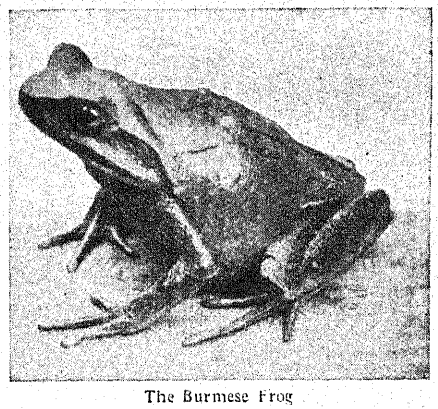
"There you see," said the king's minister, "what comes of losing much to gain a little."

The king thereupon discharged his army and returned to Benares.

Take care that in your anxiety to grasp more you do not lose what you already have.



The Painted Frog



The Burmese Frog

THE WONDERFUL AMPHIBIANS

HERE is a new version of Beauty and the Beast, with a difference.

We pass days of wonder and delight in the sunny Riviera, enchanted by a winter climate like that of Africa just across the sea, and we delight in the work of man's hands, his great mountain roads, his splendid palaces, his galleries of art, and the glorious music his genius produces.

Night comes, and all evidence of man's work fades as the stars and the Moon, more lustrous than the untravelled imagination can conceive, light the Mediterranean with a silver radiance as incredible as the blue of the daylight hours.

But there is no silence in this mysterious night, for from every hillside, from every valley, from every hidden garden, breaks out the strangest chorus that ears have ever heard. Harsh, dinning, repellent, it fills the air with a roar which suggests a city of sawmills, or hoarse goats bleating ten thousand to a chorus.

Something mad and inharmonious in Nature seems to have become suddenly vocal. The uproar is indescribable to those who have not heard it, and the explanation is as surprising as the cause.

It is the voice of a multitude of frogs, croaking their uncouth serenades. From all the art and splendour of man's creations we pass in an hour to this, from the contemplation of rare and perfect beauty to this astounding Babel of the Beast.

For all its historical background the Riviera is as modern as Bond Street, but this stunning uproar which nightly invades it is as old as the land-life of the Earth. The voice of the frog and the toad and their kind were the first of all the voices heard in the world.

We have come to the last of the land creatures that possess backbones, and they have brought us to the water's edge. We have traced life back to the margin it crossed when it ceased to breathe water and took to breathing air, when it quitted the seas and lakes and rivers, came ashore, and claimed a kingdom in the sun.

All the land vertebrates sprang from those old adventurers which performed the slow miracle of exchanging one element for another. The first ashore were born in the water; they made a journey short in distance but incalculable in consequence. They passed from the use of oxygen in water to oxygen free in the air, and they gradually converted gills into the mechanism of true air-breathers.

They gave rise to the birds and reptiles, creatures entirely of the land and air; and from reptiles came mammals, including

man. The newer Orders passed on, but the type from which they came was not obliterated. As a general maintains a rear guard, so Nature has cherished the living witness to her earliest history. The Amphibia are they.

The clammy and often slimy skin of the Amphibia causes them to be detested by people of sensitive touch, and the entire Order is regarded with disdain except by the friendly student of Nature. Possibly a toad or a frog, if it could think, and knew its tremendous history, would return the contemptuous feeling, for what upstarts we are in comparison with a newt or a salamander, or even the toad!

They are the true aristocrats of the Earth, so far as age can confer distinction. They were the Columbuses who discovered the dry land of the Earth. The world and its fullness were theirs before even the reptiles rose and conquered.

And these marvellous creatures re-live their wondrous history before our eyes, presenting to us a life-story as astonishing as anything imagined in fiction. Who, if he did not know the strange secret, could answer this conundrum:

What is it which first lives in water and drowns in air, next lives in air and drowns in water, then buries itself at the bottom of water and breathes nothing?

That is, in a sentence, the life-story of the frog common to Great Britain.

ONE OF THE STRANGEST CHAPTERS IN THE STORY OF LIVING THINGS

Commonplace though it be, this emergence of the frog from the water stands as a chapter of Evolution unexcelled in interest and wonder. First the egg, scores or hundreds laid together, in a mass by the frog, and in strings by the toad.

The egg is contained in a protecting capsule which takes up water when the egg is laid and swells almost to the size of a pea. In it is a considerable mass of yolk and the minute life-germ from which all the mystery is to appear. The greater part of the yolk sinks to the underside of the ovum. The upper part is darkly coloured, a perfect example of design in Nature, for this colouring of the exposed area helps to keep in heat from the atmosphere and so warm the germ into life.

Hatched—after perhaps ten days—the future landsman is little more than a fish, and a queer fish, too, with external gills, no fins, and no mouth, living on the capital with which he entered the world, the unexhausted supplies of yolk from the egg. Two or three days see the absorption of what remains of this, and the formation of a mouth, rather of the lamprey type, with horny jaws and lips, intended only for sucking. Thus armed, the tadpoles suck up nutriment from vegetation, from flesh, from anything that can be transferred from the water into the hungry stomach of this little feeder in the deeps.

THE MARVELLOUS CHANGE THAT TAKES PLACE IN A FEW WEEKS

Amazing changes soon follow. Internal organs appear in the body. The outer gills fade away and new ones develop internally, and these two finally become one, only the left remaining operative. That is to say, the water taken in through the mouth is squeezed out through this opening, surrendering its oxygen in the process.

Two limbs bud out towards the rear, but they are not yet needed for progress, the rudder-like tail serving to propel our little friend about his business. Seven, eight, nine weeks pass, great alterations taking place slowly all the time. The tadpole becomes less and less able to exist on the fluid oxygen of his native medium, and like a fish in overcrowded waters, he comes more and more to the surface to take gulps of air. Lungs form before the gills have quite ceased to function, and Tommy Tadpole can breathe either water or air. The front legs appear and are thrust out of the openings which the gills first occupied.

Then comes the greatest transformation of all. The land begins to call, with promise of unknown realms to explore. In this serious crisis the tadpole ceases to feed, so that his jaws may undergo a new revolution.

But there is a storehouse of nutriment in his big, fat tail, and as we watch we see day by day that this organ diminishes. The tadpole is living on it.

THE DANGER THAT LIES IN THE TAIL OF A FROG

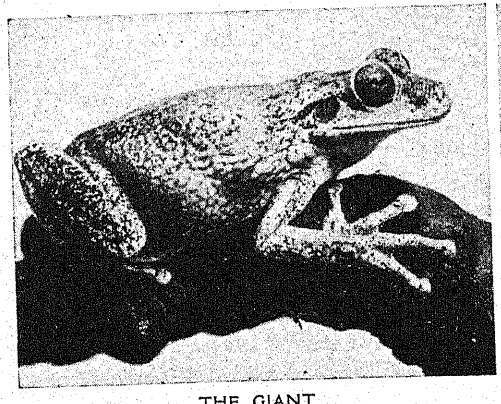
At last the whole skin splits, the jaws drop off, and lo, in a twinkling, the tadpole has gone and a tailed frog appears, as big as a button. The remnants of the tail are there, and must be absorbed, then the little frog is perfect.

There is now great peril in the tail. In climbing from the water to the land,

CREATURES OF LAND AND WATER

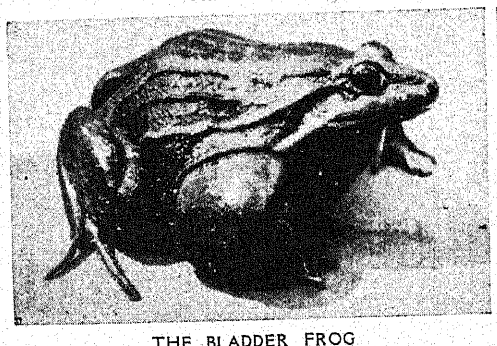
THE BULL-FROG

THE COMMON ENGLISH FROG



THE GIANT TREE-TOAD

THE SOUTH AMERICAN GIANT TOAD WITH A COMMON TOAD ON ITS BACK



THE BLADDER FROG

THE SOUTH AFRICAN BULL-FROG

THE AUSTRALIAN TREE-FROG

THE MOORISH TOAD

little froggie has to pass over parched stretches of bank, and repeatedly one has found that the moist tail, adhering to the surface, has sealed down its little owner, and fixed it there to die, dried up in the pitiless sunshine. Therefore, whereas a great tail may carry a tadpole to richer store of food in the water than a small-tailed tadpole can win, a baby frog which comes out of the water with too much tail left, may never gain freedom ashore.

All these astonishing events are covered by the three months in which spring passes and summer summons all life into teeming activity; and from that hour the frog, so conspicuous and frisky as a careless creature of the pond, seems to follow the advice of a saint and "love to be unknown." It hides by day in damp places, and splashes for safety into rushy waters when pressed.

But it can no longer live in the water. Its food—insects, worms, and slugs—are on land, and the frog must now have abundant air to breathe.

But when autumn surrenders its place to winter, our cold-blooded little friend must betake himself again to his cradle. He plunges into the water, dives down into the mud at the bottom, falls asleep and rests there, the living image of a drowned frog. But he bobs up serenely in the spring, and the water seems to boil with his activity and ardour.

THE DIFFERENCE BETWEEN A JUMPING FROG AND A CRAWLING TOAD

That is the life-story of the common British frog, and of the edible frog, his nearest cousin, long a food for human beings on the Continent. The toad, a tremendously long-lived animal, takes longer to reach maturity; there are some which require three years to pass from the larval stage to the perfect. But if frog tadpoles are starved in foodless waters, they may have to wait for a second summer before they can make the great transition.

Frogs and toads are grouped together, of course, for there is much in common between them, yet there are notable differences. The toad is shorter of limb than the frog, and, instead of leaping, he crawls. And whereas the frog must keep in a moist environment or dry up like a cut flower, the toad is formed so that he can carry sufficient moisture within his skin to enable him to live for great periods while he is apparently fasting.

This thought leads to the legends running through literature and through the grown-up newspapers concerning toads having survived alive sealed up in rocks and coal for ages. There is not a word of truth in these reports. The Children's Newspaper has frequently shown how false they are, though the explanation is simple. Toads may have been in rocks a few months, possibly years, but if so they have crawled there when tiny, have lived on insects which have crept into their retreats, and have grown too fat to escape from their prison.

THE TADPOLE WHICH NEVER COMES INTO THE WORLD

In tracing the development of the frog and the toad we might suppose that the whole story had been told; but it is not. There are multitudes of species, and multitudes of methods employed to get over their cradle days.

Ours are but midget frogs and toads compared to some. South America has a toad over eight inches long, and weighing over five pounds; but Africa has one an inch and a half larger than that, a toad which eats several mice and similar creatures at a single meal. The American bull-frog is also a monster.

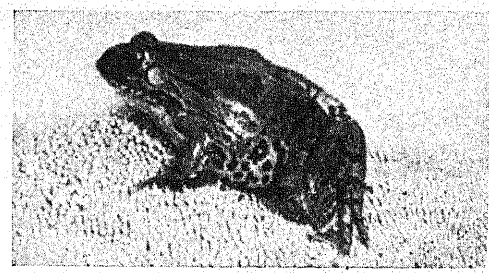
At the other end of the scale is a dwarf Argentine toad only an inch long, which pipes and twitters in the love season, like an English greenfinch. Moisture is needed for the eggs or young of this Order, and the nest may be in a tree trunk, in leaves drawn together by the cunning of the parents, or in the hollows of rocks such as those sought by a frog of the Solomon Islands, the thought of which brings us to a distinction of an unexpected character. There is no tadpole stage for this frog. The tadpole never comes into the world. It passes through all its evolutionary changes in the egg, and comes forth a tiny frog quite ready to face the world.

HOW FATHER FROG LOOKS AFTER THE EGGS UNTIL THE TADPOLES COME

Now that is not unique, for a greater wonder still remains to be cited. One of the male frogs takes the eggs as they are laid in strings by the female, wraps them about his hind legs, and carries them about with him till they hatch. He hides by day in some moist hollow in the bank of a pond, and only when his little ones emerge as tadpoles does he go into the water.

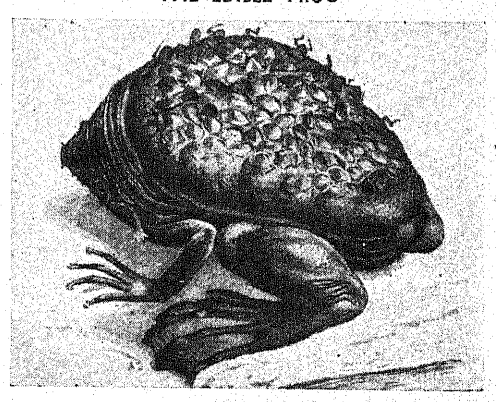
FROGS AND THEIR TOAD COUSINS

THE TIGRINE FROG



THE EDIBLE FROG

THE COMMON TOAD

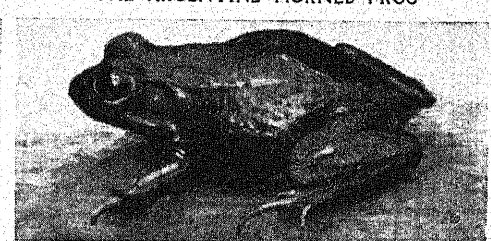


THE SURINAM WATER TOAD

THE LONG-FINGERED FROG

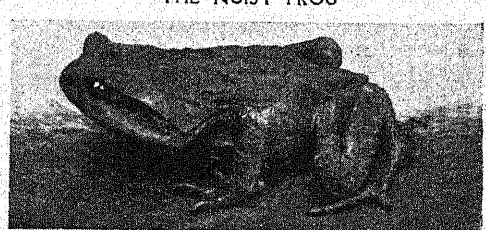
THE ARGENTINE HORNED FROG

THE NATTERJACK TOAD



THE NOISY FROG

THE GOLDEN TREE-FROG



FEA'S FROG

Stranger still is the nursery habit of the Surinam toad. The mother toad lays her eggs in the water, and then the fatherly male takes the eggs up in his fore-paws, and places them on the back of his mate. At this season the skin on the back of the female is abnormally thick and soft, and the eggs are retained by it like magic, and then quickly overgrown. Each egg has its own little cell on the back of the living incubator. The eggs may number from 60 to 120, and there they lie for three months. In that time all the necessary stages are passed through, and the mother bears about a whole population of little toads with her.

THE DAINTY LITTLE CRADLE UP AMONG THE TREE-TOPS

Then there is the dainty cradle of certain tree-frogs. Here the parents hold together the edges of leaves, or double one large leaf into a cup, and in such receptacle the mother lays her eggs, the glutinous nature of which serves to hold the side of the leaf-cradle in position. But a tadpole comes forth from this cradle in the tree, slips down into the water, and undergoes its transformation there.

Froth, like that of the frog-hopper or cuckoo-spit, safely houses the eggs of a West African and a Brazilian tree-frog, whose tadpoles have to complete their change in their castles of foam, for they die if immersed in water!

One other strange case must be noted, the most startling of all. This is a Chilean frog named after Darwin. Dangers must long have threatened the career of this species, for the anxious male will not trust the precious eggs to chance, but takes them into his mouth and there hatches them after long weeks of waiting.

THE LIVING PARACHUTES WHICH FLY ABOUT FROM TREE TO TREE

This amazing process is brought about by a striking development of a pouch on the male's throat. Apparently the vocal sacs are specially developed at this season of the year in the male, and in that pouch his young pass from egg to complete frog.

We must glance at a certain member of the flying frogs, of which there are dozens of species, not winged, of course, but with all four feet webbed to enable them to accomplish parachuting journeys through the air from tree to tree. In one of these, a species belonging to Ceylon, the tadpole does not breathe by the mouth but has the orifice on the side, midway between head and tail, like an insect of limited opportunities for the breath of life.

In the case of the frogs which have taken to trees there has been some development to fit the frog for its life, notably little sucker discs on the toes to give it a grip of the smooth surface of the leaves. But they also possess in greater measure than any other species the power rapidly to alter their colour. In changing their hue to match the general tint around them they almost rival the chameleon. Another admirable adaptation is their power to sit in the scorching sun without harm.

This would mean death to a sober Briton of the frog tribe, but not so in the case of the tree-frog. The moisture stored within his neat little hide slowly escapes by the pores, and in evaporating it leaves the tree-frog as cool as a cucumber and master of his temperature.

Granting the ferocity of the big frogs, the Order is highly estimable. They all eat insects harmful to us, and every garden should have its toads and frogs.

THE SALAMANDER THAT IS OFTEN MISTAKEN FOR A LIZARD

We must make our bow now to the salamanders and newts and their allies. Generally they follow the system of the typical frogs in their breeding habits. but there are important departures, and there is, of course, the notable distinction that most species not only retain four limbs, but their full tails. Significant exceptions occur, however.

At first sight a salamander might pass for a lizard, which it closely resembles in appearance and movement, though it is less agile. But they must have water about their nurseries. It may be that, as with the spotted salamander, the mother does not always deposit her eggs in the water, but may retain them in her body until they hatch. Even so, the young are tadpoles; and must go through their early career as water-breathers. Such a salamander may produce as many as 50 eggs or young at a time. Note, then, the difference between this and the Alpine salamander.

A great development is here. The Alpine species has learned to dispense with a pool for its cradle; the cradle is within the mother's own body. The adults frequent streams and moist woods high up the mountains, but the eggs are not laid in such places. Of the fifty which are retained in the mother's body only two come to life.

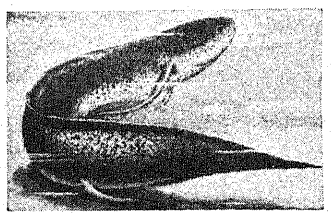
It is a fully-equipped small edition of the Alpine salamander which eventually comes forth, the entire tadpole stage having been passed through before the little one quits the shelter of its mother's body; a small salamander ready to breathe air at once and to go about its business snapping up beetles and what not.

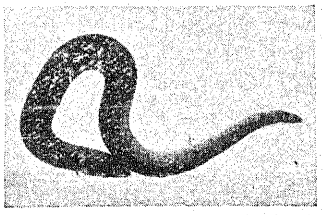
The familiar newts come next to these Alpine salamanders. They are all much more aquatic, however, and their ability to make the best of two worlds has resulted in their spreading over a much wider surface of the Earth than is the case with the more specialised ones. Everybody knows the newt, for there is hardly a pond or ditch without these agile creatures. Their tadpole stage is in the water, but afterwards they come ashore, hide among green moisture, and return to their pond only for the winter or to lay their eggs.

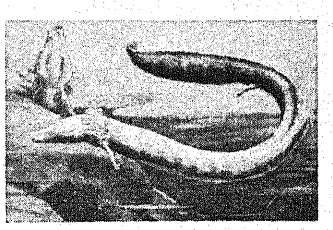
The male British newt carries on his back a handsome fin-like crest, specially prominent in the breeding season.

In most respects newts are alike in habit. Their eggs are attached singly to water plants, the leaves being folded together by the hind legs of the mother, and held in position by the stickiness of the egg. All are carnivorous, and eat tiny worms, small slugs, and other enemies of our crops.

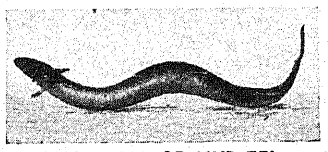
Other species of salamanders claim attention, such as the spectacled newt, so-called from the curious appearance of its head and eyes; it is found in Italy and Sardinia. But we must turn to the Axolotl, which has become the most famous of amphibia.


THE AFRICAN MUD-FISH


THE THREE-TOED SALAMANDER


THE OLM

THE CRESTED NEWT

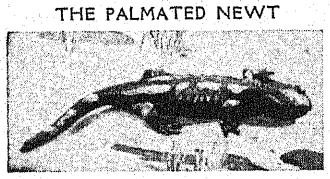

THE SIREN, OR MUD EEL

A SPANISH NEWT

THE PALMATED NEWT

THE AXOLOTL

THE SMOOTH NEWT


THE SPOTTED SALAMANDER

THE COMMON NEWT

THE MENOPOMA

It is a native of Mexico and many parts of North America. In Mexico, in waters abundant with food, the axolotl swims at ease, a tadpole with true gills, and declines to take the plunge into maturity. It is born a tadpole, it lives a tadpole, and it becomes the parent of other axolotls, all without growing up.

It is not so elsewhere, for outside this Mexican area the axolotl changes into a well-known salamander, the Amblystoma; but Mexican waters are surrounded by dry inhospitable regions, where the amblystoma might perish for lack of food and moisture, so an axolotl it remains!

It is found, however, that where conditions are against it in the water, if food fails, then the axolotl changes with alacrity and becomes a true salamander. It has done so in our own Zoo.

Another way to effect this wonder is to place small quantities of extract of thyroid gland in the tank of the axolotl. That brings about its rapid conversion. It does the same with frog tadpoles, rushing the little tadpole in haste through its cycle and turning it into a frog—not of normal size, but one no bigger than a fly!

THE GIANT SALAMANDER GROWING TILL IT IS NEARLY FOUR FEET LONG

There are many other interesting salamanders, some of which, dwelling in caves and deep wells, retain their gills and tadpole condition throughout life. There is a true giant of salamanders, native of China and Japan, nearly four feet long and heavy in build. Another is remarkable for having but three toes to each foot; and another, in the Mississippi country, retains gills with its lungs, and apparently lives on fish as well as worms and other fresh-water life.

A still more curious salamander is the Olm, known to science as Proteus anguineus. It is a creature of mystery, ten inches long, with the two pairs of limbs far apart, with the eyes completely covered with skin and sightless, though still sensitive to light. Throughout life it retains its gills and remains a water-breather, deep down in the subterranean streams which course through the hearts of the Alps in Carniola, Dalmatia, and Carinthia. Only in time of flood is it washed into the light and its presence in life made known. Once upon a time, before it took to this dismal abode of unsunned waters, the proteus must have been a normal salamander, but all efforts to make it follow the old line of development have so far been in vain.

THE SNAKE-LIKE AMPHIBIANS AND THE TALE THEY TELL OF OTHER DAYS

Yet another salamander has so far strayed from the original pattern as to have only two legs. It has gills, but also an internal breathing mechanism for the use of air. One, kept at the Zoo, used to climb out of the water and rest in the open during the summer.

There is something snake-like about these salamanders, but we go a step farther with the Cecilians, to find amphibians which have entirely lost their limbs as well as their eyes. They are worm-like in their habit of burrowing in moist, soft soil. There the mother lays her eggs and coils herself round them till they hatch. The tadpoles remain in the substance of the mass of egg till they have shed their gills, when they sally forth to the water and complete their larval growth.

A great variety of these curious creatures is spread over parts of Africa, tropical Asia, and South America (there are fourteen genera in all), and this wide distribution of a helpless, untravelling group is clear evidence of the former connection of Africa and South America. That fact alone tells a tale of ancient days, and we leave the amphibia with it.

With the amphibia we say farewell to all the backboned life ashore. Even this last and lowest order we find replete with variety in form, habit, surroundings, a series of masterpieces. A philosopher once burst into tears in the belief that, the notes of the musical scale being so few, all possible combinations had been exhausted, and no other compositions like Mozart's would gladden human hearts.

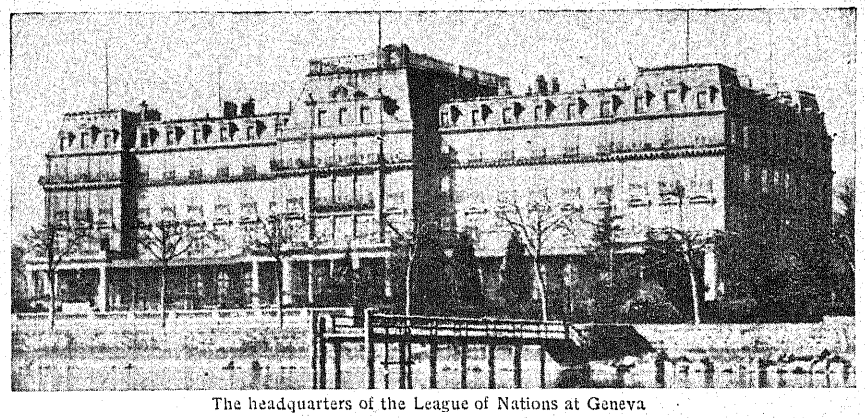
THE ANCIENT STOCK FROM WHICH ALL ANIMAL LIFE AROSE

Nature has at her command, for the creation of Life, fewer elements than the notes of the octave, and she employs precisely the same elements for the making of man and maple and mastodon. But what incomparable variety she conjures from those few! What wonder and diversity she produces even in this limited Order of Amphibia.

These children of hers are all feeble of brain, chill of blood, timid shrinkers from the anxious competition of life; but they are precious mementoes. They are Ancient History surviving today. They are the stock from which we all came.

A toad rises from a line more ancient than the cedars of Lebanon and the patriarchal sequoias of California. These creatures have their place in this lovely world of ours, venerable, grim, grotesque.

They are of the earliest days of life on land and proclaim that in Nature, as in Art, beauty was a process of Evolution. Important life ashore began with the Beast, and the Beast lives on into a world sweet with flowers, melodious with singing birds and women, incalculable with marvels cradled in the imagination of Man.



The headquarters of the League of Nations at Geneva

THE HOPE OF THE WORLD

OUR quick survey of the world's history must have suggested to every thoughtful reader that something has always been wanting in the world to prevent that destruction of masses of men by masses of men which has the name of War, the most stupid and cruel relic of barbarism still left on the Earth.

Not a century has passed in which intelligent nations, whose reasonable purpose in the world is mutual helpfulness, have not fallen on each other with fury, and, after destroying tens of thousands or hundreds of thousands, or even millions of lives, subsiding into a precarious peace, exhausted, impoverished, and physically broken, with ruin scarring the Earth wherever war has been.

No one can point to war as a promoter of the welfare of mankind. Waste in life, in wealth, and in happiness, is its one inevitable result. And yet, from the incitements of ambition, jealousy, greed, and perverse customs which survive from man's primitive state of savagery, war has gone on, always leaving behind it the germs of another war, as epidemic diseases leave their germs, here and there, to cause in the future more suffering and death.

As man is intelligent, generally kind, and in many instances a noble creature, with aspirations gentle and even lofty, how can this curse continue to exist? It has been incessant in its repetition, till it takes the appearance of an appalling custom, with so strong a hold on nations that it seems to many minds as if it must for ever be. The question of how it can be ended must rise to the minds of all who survey the course of history with a fair mind and a feeling heart.

The problem has seemed on the way to a solution again and again, but no solution has been reached. It seemed on the way when the Roman Empire was firmly founded. There came a moment of universal peace under the wide-spreading power of Augustus Caesar when

> No war or battle's sound
> Was heard the world around.

That was a strange feature of the hour when Jesus was born.

But the power of the Roman Empire could not sustain that gracious peace. The heart of the world was not at rest. Rome, after all, was but a fragment of mankind, a smaller fragment than she thought she was. Around her, in the dimness beyond her vision, were many warlike races still in love with war, and a single conqueror could not keep the world at peace. Rome's enemies surrounded her

as she weakened in her noble virtues, and, as she had conquered by war, she fell by war. No universal empire was strong enough to stand by its own might.

Once in history the Christian Church, which took the place of the Roman Empire, had a dream of a universal influence that would calm men's passions, control the ambitions of kings and of races, and wave over all mankind the wand of peace. But it was not to be. The Church itself began to trust to the hand of Might. Organised religion, instead of carrying on the gentle spirit of Jesus, fell apart into fierce-hearted divisions, and war in its worst forms arose under the banners of rival faiths. Neither a universal Kingdom of Earth, nor a universal Kingdom of Heaven could stand compact behind a hedge of defensive swords. That was not the way of Peace.

But has the experience of the ages brought to light a surer way? If it has, now is the time, surely, when that way may be revealed; now when war in its most awful and cruel and wasteful form is fresh in memory, and the nations of the Earth are mourning twenty million dead.

THE LONG, LONG TRAIL THAT LED TO THE LEAGUE OF NATIONS

The reply is that the Great War of our time, up to which all history had been leading men in blindness, does seem to have opened many eyes to the folly and madness and sin of those methods of government which have made the centres of civilisation a blood-stained shambles. The heart of mankind feels that the age-long disgrace of swift and cruel war, leading through misery to no good end, must be grappled with by the universal conscience and mind of men, and a way has been found by which the blind and insensate butchery of war may be controlled. By devious paths of suffering the nations have come to a vantage-ground of reasonable hope. They are being drawn together in calmness of mind to a common meeting-place of reconciliation and mutual understanding. The meeting place is at the table of the League of Nations in Geneva. The aim of the League is universal justice, leading in the end to universal peace.

Never before has there been such an organised attempt to solve the fateful problem of war. Always before, when nations have met in consultation to arrange their future, there has been a balancing of one group of nations against the other group, and war has been lurking in the background as a dreaded probability, often as an ultimate certainty. But with the League of Nations war is recognised as the enemy of all, to be opposed by all for the good of all.

Diplomacy has been regarded as a game played by experts to secure the greatest possible advantage for each country taking part in it. But the League of Nations is based on an entirely different assumption. It renounces selfish advantage for every member of the League. Through it more than fifty nations pledge themselves to form a great body of world opinion that shall seek only to ensure justice between nation and nation, so that fewer and fewer dangers of strife may remain, and war may at last be excluded from the civilised world, as the monstrosity it really is.

THE ENEMIES OF PROGRESS WHO OBJECT TO THE LEAGUE OF NATIONS

Who can object to such a League? Of course, there are objectors. Powerful nations, blinded by their own selfishness, are enemies of it. Men who have no belief in progress, no faith in humanity, say that what has been will be, though there are a hundred cast-off evils to prove the hollow falseness of their theories. Those who live by war, and are benumbed by its customs are always enemies to the cause of peace. Many are blinded by the glamour of war, and the heroism it evokes, or are puzzled by the fact that soldiers have often been men of truly noble character, upholding lofty causes, and rightly regarding war in some circumstances as a terrible duty. Then there is the vast multitude of thoughtless people who expect the greatest reforms to be completed at once, and indulge in cynical scorn if difficulties or checks arise, as arise they must when any great aim is pursued. Yes, the League of Nations will be opposed not only by lovers of old custom—even the custom of war—but by unbelievers in progress and by detractors of anything ideal.

FIFTY COUNTRIES WITH FAITH IN THE FUTURE OF THE WORLD

But the great compelling idea of the League has behind it the instinctive humanity of practically every nation in the world, and the enthusiastic support of all who come into close touch with its work.

With its secretarial staff housed at Geneva, where its meetings are held, the League represents more than fifty countries, whose representatives meet at least once a

year as an Assembly. A Council of ten members is formed; at present four are from Great Britain, France, Italy, and Japan, and six from other countries elected by the Assembly. The Council must meet once a year. Detailed work is done by Commissions. Two branches of the League, doing associated work, are the International Labour Office, and the Permanent Court of International Justice, this court meeting at the Hague. Special sections deal with the administration of districts for which the League has responsibility where there are minorities of population needing protection and watchfulness; and where Mandates have been issued to Governing Powers.

THE END OF AN ANCIENT EVIL THAT BROUGHT ABOUT MANY WARS

There are also sections for the limitation of armaments; for economical and financial advice; for transit where railways pass over several frontiers; for humanitarian purposes such as caring for prisoners of war, and refugees, the suppression of traffic in women and children, and the distribution of dangerous drugs. Then there is a Health Section for the restriction of epidemic diseases; an Information Section circulating knowledge which is useful for all countries; and a Legal Section where all treaties between nations in the League must be registered, thus striking a blow at the evil practice of secret treaties, which has been one of the worst methods of bringing about war in the past. No fewer than 350 treaties have already been registered with the League.

THE SPLENDID WORK OF THE FIRST FEW YEARS OF THE LEAGUE

All these branches of the League's work have already been in busy operation, dealing with many questions of the kind which, in the past, have often led to war. The work done has included

the guaranteeing of the constitution of the Free City of Danzig;

arbitration in disputes between Germany and Poland respecting the division of Upper Silesia;

the administration of the Saar coal district;

the government of the Aaland Islands by Finland with guarantees of fair treatment for the Swedish inhabitants;

a supervision of the treatment of minorities wherever the new mapping of Europe has left a mixed population;

the distribution of Mandates for the government of outlying parts of the world not yet capable of self-government;

the stopping of hostilities between Serbia and Albania, and the establishment of Albania as a country in the League, with such financial advice as has enabled her to organise her government;

the drawing up of a scheme of international credits for helping the weaker and less experienced States;

the successful reorganisation of the finances of Austria when she was on the brink of ruin—a success immediately followed by an application from Hungary for similar assistance.

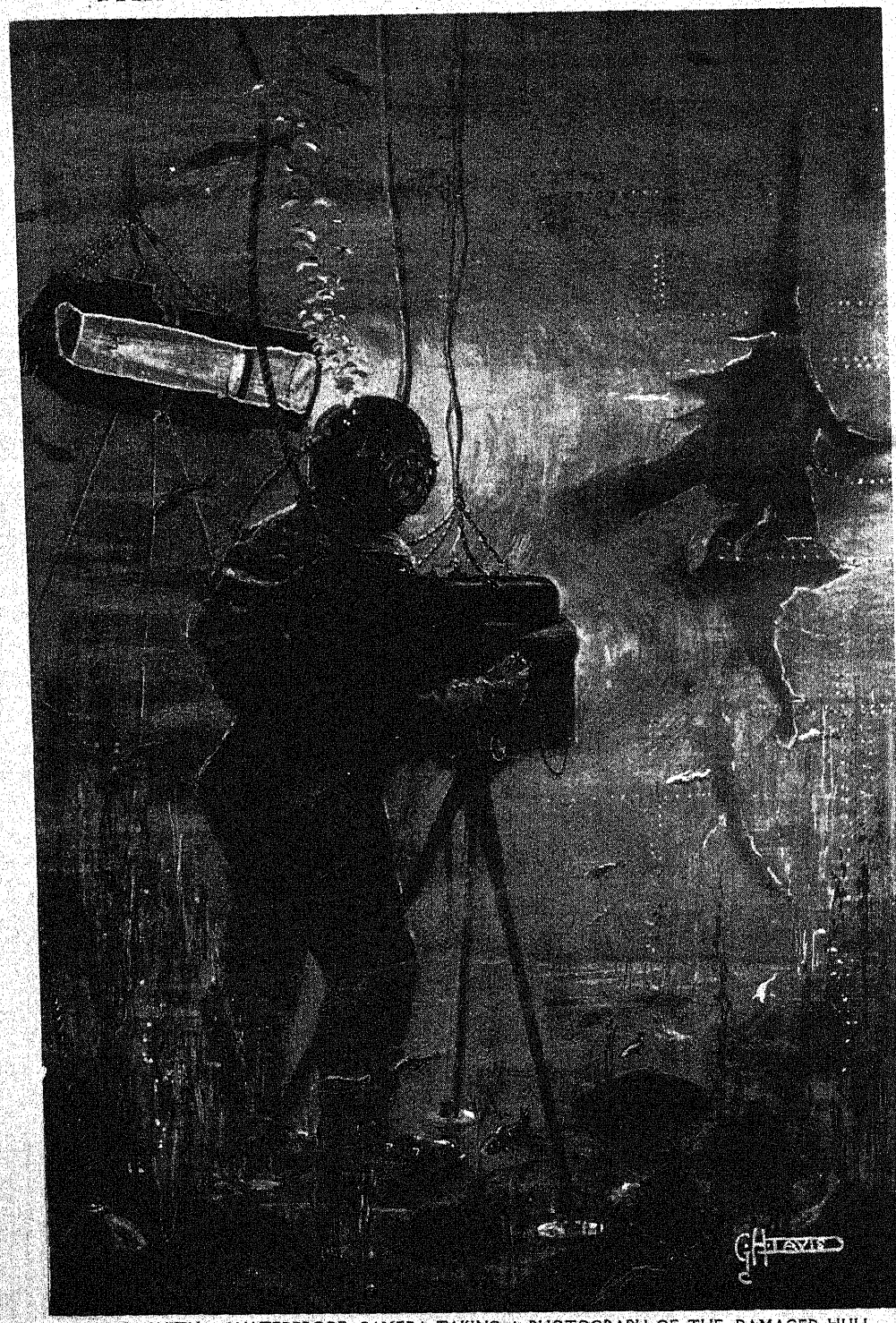
Further, 427,886 prisoners of war were returned to their own countries by the League, and enormous numbers of refugees have been assisted in innumerable ways. An International Public Health Service has been promoted for checking epidemic diseases. On the side of International Law, the Court of International Justice has decided several interesting questions, including serious disputes between Great Britain and France. This enormous total of work has been done by the League though it is admittedly still in an incomplete state, with three great nations, Germany, Russia, and America, outside.

THE LEAGUE THAT LEADS US ON TO THE BROTHERHOOD OF MAN

But the reasons why these countries are outside the League for the present are so fully understood that they cannot be used as an argument against the League; and the day is coming when all these nations will share the great effort to kill war.

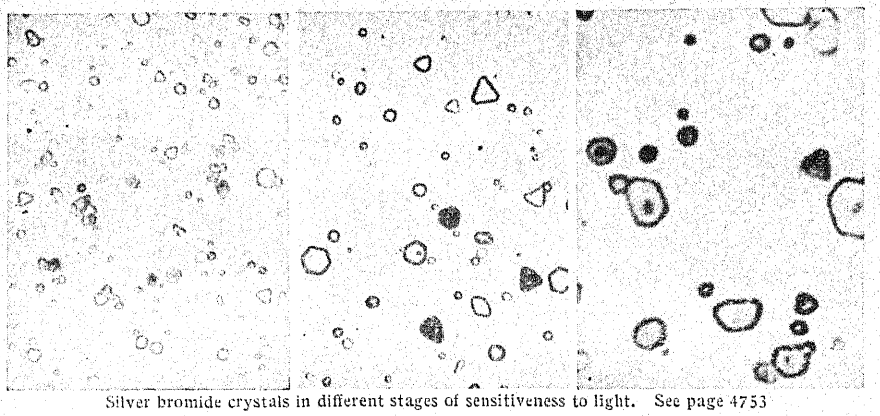
The League of Nations is already a proved success, and is growing towards a supreme success. It is bringing nations together quietly in peace in such a way as to avoid, with infinite care, all possible excuses for war. Instead of meeting in fear and jealousy of each other, nations are meeting in common friendship with only one distrust among them—distrust of disturbers of the general peace. They are establishing a world-wide conscience which will judge any offenders who return to the barbarism of war. Out of the wayward story of rival nations and the frenzied madness of Armageddon, has come the growing hope of this noblest League that ever was formed on Earth, worthy of the faith of every man, of the enthusiasm of every race, and of the devotion of every church; for the League unites them all.

THE CAMERA IN THE OCEAN BED



A DIVER WITH A WATERPROOF CAMERA TAKING A PHOTOGRAPH OF THE DAMAGED HULL OF A SUNKEN SHIP WITH THE HELP OF ELECTRIC LIGHT

4750



Silver bromide crystals in different stages of sensitiveness to light. See page 4753

THE CAMERA AND HOW IT WORKS

Most of us have taken a photograph at some time or other. We have probably put a roll of film into a camera, made half a dozen exposures, and sent the films away to a chemist, who sent back to us a delightful set of black and white pictures, and perhaps some failures.

But how few of those who make photographs in this simple way realise that many of the world's greatest chemists and physicists have spent years in trying to solve the mystery of the camera! A photographer sees a pretty scene, focusses his camera on it, and clicks the shutter. A wonderful thing has happened. An impression of the scene has been recorded, perhaps in the hundredth part of a second, on the sensitive film, from which any number of prints can be made portraying faithfully in every detail the picture that was photographed. The camera is a modern miracle, known and used by us all, yet not one person in a thousand ever gives a thought as to how it is all done.

In the early part of last century two Frenchmen were at work on the same problem; they had each conceived the idea of fixing permanently the little image formed by light in an apparatus they had devised. These men were Joseph Nicéphore Niepce and Louis Jacques Mandé Daguerre. They joined forces and worked for some time together, until the death of Niepce in 1833. Eventually Daguerre succeeded in producing photographs on a polished plate of silver by a laborious chemical process, and his wonderful discovery was rewarded by the gift of an annuity from the French Government. Several other workers, including Fox Talbot and Sir John Herschel in England, did much to make photography a practical success.

Today we can record a picture in a twenty-thousandth part of a second, so marvellously sensitive to light is the modern photographic plate. We can take transparent photographs in all the beautiful colours of Nature, and show actual movement by means of the kinematograph.

The most extraordinary progress has been made, and photography has crept into our daily life to such an extent that we cannot pass a day without enjoying its benefits. The illustrations in every newspaper, book, and catalogue, are produced by the camera. Our knowledge of science, of astronomy, of chemistry, has been enormously aided by photography; it is used in medicine and electricity for recording the movements of delicate instruments. Map-making and surveys are done today by the aid of the aeroplane camera. In

both science and industry the miracle of the photograph has become indispensable.

What is it that happens in a camera? Well, a camera is like a big eye, which can see everything within its range and has one power the human eye does not possess—the power to make a lasting picture of any scene. We can thus not only take photographs of our friends and our holiday scenes, but can make records of historic events and permanent pictures of famous people which can be preserved for all time. We can photograph things that move so fast that hitherto no human eye has seen them—as, for instance, a bullet leaving the muzzle of a gun, and the ripple in the air made by its swift passage.

THE NEW WORLD OPENED UP BY THE EYE OF THE CAMERA

The movements of an electron, travelling with incredible speed, have been depicted by the camera, as has the process of transformation of one element into another. A new world has been revealed by this chemical eye which sees everything and can make a faithful copy of it.

The camera is a light-tight box, with a lens in front and at the back a sensitive film. The lens is the eye of the camera; it collects the rays of light from the object before it and casts them in the form of a reversed image on the plate.

All kinds of devices are present in the modern camera. The modern lens is in many cases quite a complicated thing. A simple lens has many drawbacks; it will not throw the image of a building correctly on the plate, for instance. The straight lines of a high building would appear curved, the finest details would be somewhat blurred. In the case of a colour image the different colours would not all appear equally distinct. Six or eight lenses are combined to correct these various faults, and if it is desired to improve the definition only a small central portion of the lens is used, the rest being shut off by what is called a diaphragm.

THE WONDERFUL SHUTTERS THAT ALLOW THE LIGHT TO PASS

By a remarkable piece of mechanical ingenuity the lens-maker has made it possible to alter the size of this hole or diaphragm, just as the iris of the eye opens and closes with varying strength of light. Most cameras are fitted with what is called an iris-diaphragm, with which the lens can be opened or closed by moving a lever.

The lens throws an image of the scene in front of it on the sensitive film at the back of the camera, but as only a fraction of a second is necessary for the film to record a picture there must be some means of opening and closing the lens rapidly; or making the exposure, as we say.

Here, again, wonderful ingenuity has been displayed, and all kinds of shutters have been invented which just allow the rays of light to pass through the lens on to the plate for the right time to record a picture. Many of us remember the days when the photographer in his studio would make the exposure by taking off a little leather cap from the lens for a few seconds and replacing it. Today we either press a little lever or squeeze a small rubber ball to set in motion the mechanical device which opens and closes the lens. Shutters are made to open and close so fast that the exposure can be as short as a thousandth of a second. They are made with great precision, and of such importance is it to make exactly the right exposure that a special department exists at the National Physical Laboratory for testing and timing photographic shutters.

THE GREAT MIRACLE THAT HAPPENS IN THE LITTLE BLACK BOX

During the brief time the image falls on the sensitive film a profound change takes place in the film. If we were to look at it we should not see the slightest change in its appearance, yet the invisible change that has taken place is so great that on placing the film in a chemical solution a miniature image gradually appears on its surface, and the modern miracle of recording a scene has been accomplished.

To understand something of what happens when a photograph is taken we must learn about the little world that exists in the creamy layer of sensitive material with which a plate or film is coated. This layer—which is itself usually called the film—consists of millions of tiny crystals composed of two elements, silver and bromine, chemically combined and known as silver bromide. The effect of the light is to loosen the hold the bromine has on the silver, with the result that the developing solution takes it entirely away and leaves a black form of silver behind in the film; it is this which really constitutes the image. The tiny crystals of silver bromide are embedded in gelatine. They are almost all too small to be seen with

the eye, but are easily seen with the aid of a powerful microscope.

Something very interesting has been learned during the last year or two about these crystals. When first made by the chemist they are not very sensitive to light, and are extremely minute. By gentle warming of the mixture of silver bromide and gelatine, called the emulsion, they gradually grow in size, and at the same time they become thousands of times more sensitive to light. Eventually they reach quite a large size—actually about a ten-thousandth of an inch in diameter, and at this stage they are so sensitive to light that an exposure of a twenty-thousandth of a second will affect them.

Some of these crystals are seen in our pictures on page 4751, which are taken through the microscope and magnified about 3000 diameters. These are the tiny crystals with which every negative is made. The smallest are crystals just prepared by the chemist—many of them have not yet taken form. The second photograph shows the crystals when they have been partially ripened, and the last shows the crystals of the fastest plate in the world.

WHY PHOTOGRAPHIC PLATES ARE DEVELOPED IN A RED LIGHT

Dark patches on the surface of the crystals are seen in some cases. These have been discovered to be the real cause of the great sensitiveness of the silver bromide. If a ray of light strikes one of these sensitive spots the whole of the crystal will blacken when placed in the developing solution.

We now come to the interesting ruby light of the dark room. Those who never develop their own photographs may not even know that when the plates are developed they must only be dealt with in deep red light. There is a very simple explanation of this. The fastest plate is colour blind; it is only affected by the violet, blue, and green rays which, with orange and red, go to make up what we call white light. So that, as the sensitive crystals are unaffected by red rays, it is, of course, safe to use a red light in the dark room. In this dim illumination the film is immersed in a chemical solution which has the power to turn to black silver metal all crystals that have "seen the light," and thus it is that we get the negative image.

Hundreds of workpeople spend the whole of their factory lives in the red light, making the materials the amateur photographer uses. A sensitive film must never see the light from start to finish, until it has been developed and fixed.

The chemist first mixes the emulsion and this is handed out to the coating room, which is so dimly lit with deep red light that the coating hands have to wait in a darkened room for some time before entering, in order to get their eyes accustomed to the dimness. The emulsion is spread on glass plates, which are fed on to an endless band wet with ice-cold water, and at the end of the band the cooled plates are taken off and placed in racks which are put into warm drying rooms through which purified air is circulated, where they dry in a few hours.

HOW THE FILM IS PREPARED IN READINESS FOR THE CAMERA

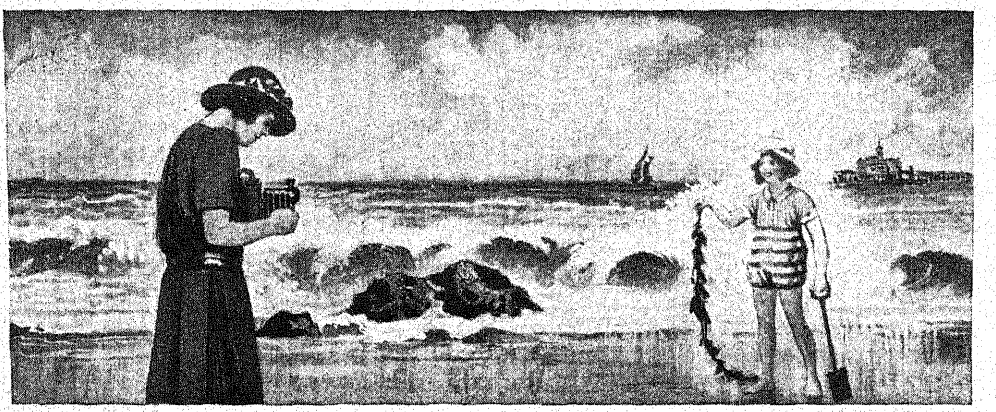
The roll film used in film cameras is prepared in a different way. The gelatine emulsion is spread on a moving band of celluloid, which passes over a roller and is then run into a drying chamber, where it is suspended in loops until it is dry. It is then cut into narrow bands on a slitting machine—all this being done, of course, in the faintest red light—and proper lengths of the narrow bands are wound on to spools ready for use in the camera. Kinematograph film must be perforated at both sides in a special machine, the perforations being necessary for the driving wheels of the mechanism to engage in. This work has to be done with the greatest precision, and requires great skill.

Let us follow the sensitive film after it has been exposed. The little picture that has fallen on its sensitive surface has made the wonderful invisible change we have already looked at. The film can be kept undeveloped for years, but this change would remain unalterable.

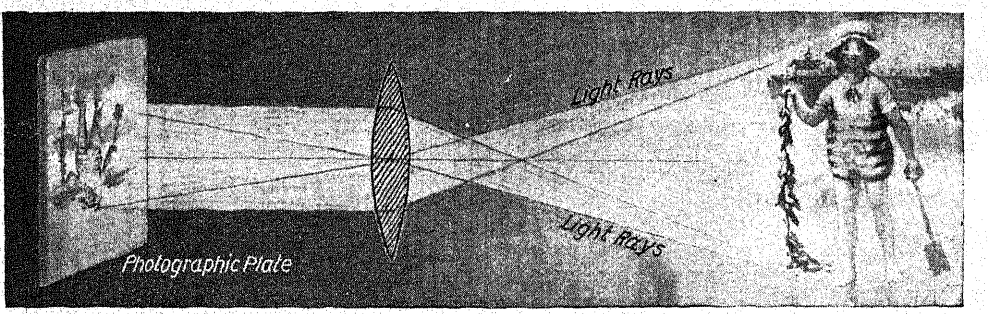
HOW THE IMAGE ON THE FILM IS BROUGHT TO LIGHT

The developing solution has the power to bring this image to light at once. Each little crystal of silver bromide that has been struck by a ray of light begins to crumble to pieces, as it were. The cream-coloured film begins to turn grey in just those parts that have been exposed, the silver being deposited in its black form and the bromine being destroyed by the developing solution. By and by the image will be completely developed, and all that then remains to be done is to put the film into a fixing-bath—a solution which dissolves away any sensitive salt that has not been used in forming the image, so

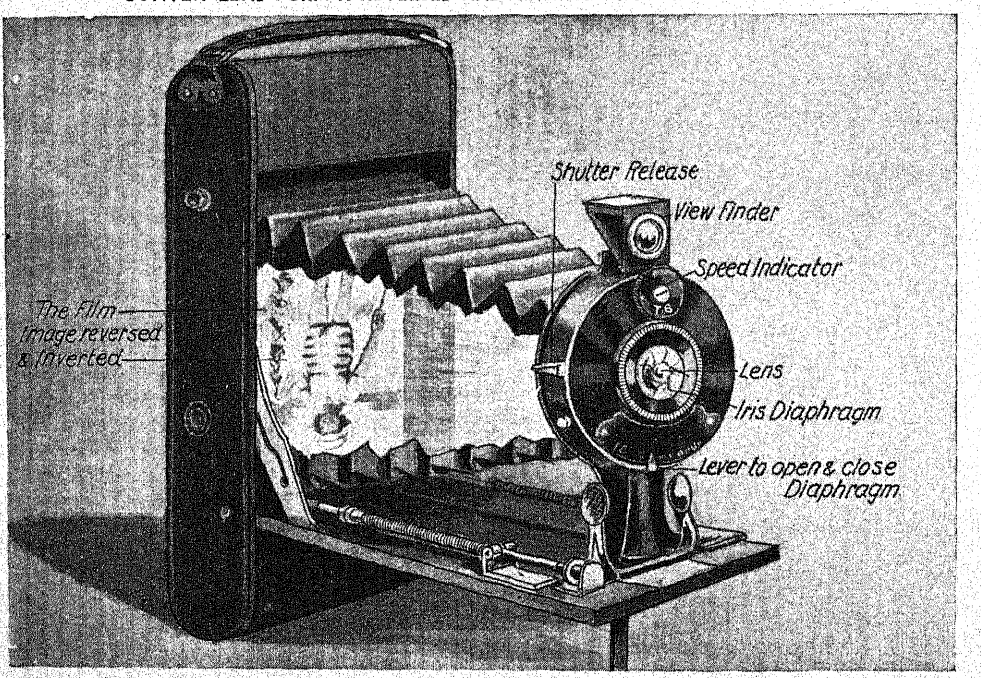
HOW THE CAMERA TAKES A PHOTOGRAPH



TAKING A SNAPSHOT PHOTOGRAPH ON THE SANDS



THIS DIAGRAM SHOWS HOW THE LIGHT RAYS FROM AN OBJECT PASSING THROUGH A DOUBLE CONVEX LENS FORM A REVERSED AND INVERTED IMAGE ON THE PLATE

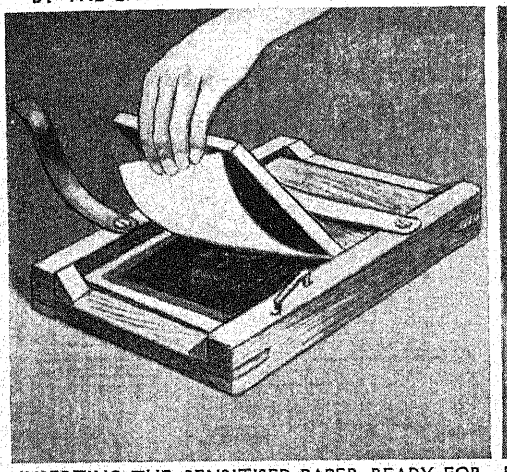


THIS IS A POPULAR TYPE OF FOLDING HAND-CAMERA, THE BELLOWS BEING CUT AWAY TO SHOW THE IMAGE AS IT APPEARS ON THE FILM AT THE TIME OF EXPOSURE

DEVELOPING AND PRINTING THE PICTURE

DEVELOPING A STRIP OF EXPOSED ROLL-FILM BY THE LIGHT OF THE DARK-ROOM LAMP

A WELL-DEVELOPED NEGATIVE WITH THE BLACKS AND WHITES REVERSED



INSERTING THE SENSITISED PAPER READY FOR THE PROCESS OF PRINTING BY DAYLIGHT

FIXING THE IMAGE ON THE PRINT IN A BATH OF HYPO SOLUTION

WASHING THE PRINTS IN RUNNING WATER TO GET RID OF ALL TRACES OF HYPO

THE FINISHED PRINT OF THE PHOTOGRAPH MOUNTED AND READY FOR FRAMING

that the plate (the negative) can now be looked at in ordinary daylight.

But the taking of a photograph is not finished when we get the negative picture on glass or on the film. The negative not only shows everything as dark which was light in the original picture, and everything as light which was dark, but everything is *reversed in position* as well. We must take another photograph of the negative. This is really what we do when we make a print. Everything then becomes yet again reversed, so that blacks in the negative become whites in the print, as they are whites in the original, and with this reversal of colours, or tones, we get the reversal of the picture, so that everything in the print appears correct.

THE RAPID PROCESS OF PREPARING FILMS FOR THE KINEMA

The paper on which the negative is printed is coated with an emulsion of silver salts very like that of the sensitive plate, except that it is much slower, so that instead of wanting an exposure of a fraction of a second, it must be exposed for several seconds or even for a minute.

All kinds of remarkable machines are in use for printing photographic postcards, but still more wonderful are the machines for handling long kinematograph films. These are generally dealt with in lengths of 400 feet, representing 4000 or 5000 pictures. A length of film, after it has been exposed in the kinematograph camera, is wound on a special machine in and out of the developer for seven minutes, and when the negative pictures are produced it is transferred to a fixing and washing machine. The film is often wound like a spiral round a circular frame, and dealt with in this manner. The negative film is quickly dried in warm air, and is then run through a printing machine. A print is made on what is called positive kine-film. This has again to be developed by machinery, but the whole process occupies quite a trifling time. So it is that great events which take place in the morning or afternoon are shown on the same evening hundreds of miles away.

THE SECRETS OF NATURE THAT THE CAMERA REVEALS

Other types of camera have helped us to understand some of the wonders of Nature in recent years. Photographs have been taken at the bottom of the sea by a submarine camera invented by a French scientist, and new knowledge of the world under-water has been revealed. In 1923 a new method was discovered of photographing living bacteria through the microscope by means of ultra-violet light, and the form and structure of microbes was revealed in a way quite new to bacteriologists with astonishing magnification. This splendid discovery is likely to lead to a vast amount of fresh knowledge about the ways of these tiny organisms, many of which are "friendly," and are now being used to make motor-spirit and foodstuffs.

The camera has two different fields of use. When a telephoto lens is used the camera will photograph far-off mountains and bring distant things within our vision; or it will magnify the infinitely little, the thing that the eye unaided will never see, and reveal the most delicate details of its wonderful structure.

The photographic plate is used in numberless cases to show the movement of a spot of light, which may trace a zigzag or a curved path caused by the movements of some scientific instrument. Excessively small electric currents are frequently measured by photography. The current is passed along a fine wire or fibre suspended between the poles of a powerful electric magnet, the force of the magnet causing the wire to move to one side, or in some cases to twist through a small angle. Sometimes a tiny mirror is attached to the moving wire, which reflects a spot of light upon a film wound round a drum slowly revolved by clockwork. All such movements are seen on the film when it is developed, and the strength and duration of the currents can easily be calculated.

THE MANY USES OF THE CAMERA IN THE LIFE OF THE WORLD

The seismograph, which records the time, duration, and strength of an earthquake is a photographic instrument, a film on a moving drum being taken off and developed once a day or once a week as the case may be, any movement in the Earth being recorded as distortions of an otherwise unbroken line.

Then there are instruments for showing by a photograph how strong and how frequent the heart-beats are, and other devices which show whether there is any fault in the mechanism of a high-speed engine such as a steam turbine. The wonderful high grade steels for which England is so famous have been largely discovered as the result of photographs of the crystal structure of metal alloys, made with the help of the microscope.

WHAT IS PANDORA'S BOX?

THE humans had become haughty and mocked the gods; wherefore Jupiter summoned his son Vulcan and said: "Forge thou a beautiful statue, and I will send it down to them for their chastisement."

When Vulcan emerged from his forge he carried a lovely statue and bore it to Mount Olympus, where the gods met to glorify his masterpiece. Minerva, amazed at such beauty, kissed it, and her touch gave life to the statue. Each of the gods bestowed a gift for its adornment: robe, girdle, scarf, necklace, bracelet, rings; and as she had so many gifts they called her Pandora. Mercury, spreading out the wings of his little hat and sandals, flew down to Earth with the beautiful Pandora to give her in marriage to King Epimetheus, and as they left Olympus Jupiter thrust into her hands an ivory box, round which a gold viper was entwined.

The travellers sped on their way, but as they crossed a stream, leaping from stone to stone, Pandora dropped her box.

"I should leave it in the brook!" cried Mercury, already on the other bank; however beautiful it was, Mercury feared the box would bring with it nothing but misfortune. "Misfortune!" came a strange echoing voice. "Who speaks thus?" questioned the frightened Pandora. "It is Echo, a prattling nymph allowed only to repeat the end of the words she hears," said Mercury. "You see that Echo also warns you against the box." But Pandora wanted her box, and Mercury, shrugging his shoulders, recovered it from the stream.

In the palace of Epimetheus, Pandora and her bridegroom were looking at the lovely box when the golden serpent loosened its coils. The temptation was too great for Pandora, who longed to know more of the casket, and slowly and fearfully raised the lid. Then, with a bitter cry, she dropped the cover down again. A bee had stung her. Then a dog bit her husband. People everywhere began to fight and quarrel in the streets, and wailings were heard on every hand. All the evils in the world had come out of the box. Wickedness, wars, diseases, jealouses, all had escaped, and were making havoc among the humans. Epimetheus would lament: "Inquisitive woman, why did you open the box?" Pandora would complain: "Short-sighted husband, why did you not warn me?" But it was too late, for evil had spread all over the Earth.

Yet from the bottom of the box flew out a shining bird, and as it flew around Pandora it twittered sweetly: "I am Hope; as I stole into the box so will I steal into human hearts."

Why Are There Some Illnesses That we Cannot Get Twice?

This is one of the greatest questions in science today, and many very clever men are trying to find out the exact reason why we never suffer twice from certain diseases; in other words, how it is possible for people to become *immune*, or free from these ailments. There is no doubt of the fact that when people have had small-pox or measles or scarlet fever once, they very seldom suffer from them again, even if there be an epidemic all round them. In some way or other the tissues of the body have become changed as the result of the first attack, and are thus made better able to resist that particular kind of infection. Some people think our bodies have become accustomed to that infection; so that it does not infect them any more; but, whatever the exact nature of the resisting power is, there is no doubt it is a very common process in many parts of our physical nature.

How Does a Flower Grow?

All living things grow at some period or other in their lives, and the secret of growth is part of the secret of life itself, which men have not yet found out; so it is only possible to answer this question in part.

We can say what are the conditions without which the flower is unable to grow. It must have light, water, air, and certain salts, containing certain elements, dissolved in the water which is sucked up by the roots. If these conditions are granted the plant will obtain for itself the materials needed for building itself up, and the energy employed in doing so. Not much could be said beyond this.

All we know is that there is something in the life of the rose plant that determines that the flowers it bears must be roses and not lilies or wallflowers. Nor will any kind of outside change cause anything but a rose to be produced by the rose plant. The cells that contain the life of the plant are so made that the flowers are true to type.

The same is true of every kind of animal and plant. Each has its own structure, and will grow in its own special form. Exactly the same food may be given to the rose, the lily, or the acorn, and they will grow to be what they must; and exactly the same milk may be given to Marjorie and to Marjorie's kitten, to Tommy and to Tommy's puppy, and each will grow to be what its nature demands.

What Does the Name of England Mean?

The name England was made in Germany. Our island has often been invaded in the past, and among the most important of its invaders were a tribe of people from North Germany, called the Angles. They settled mainly in the south part of Britain, which they called after themselves, Angle-land, or, as we now say, England.

The Angles form only a small fraction of the source of the English people today. Our country gained no doubt, in the long run, from all its invaders. In our people today there are represented not only English—in the strict sense—but also Saxon, Danish, Norman, and Roman blood.

Should we Like One Friend More Than Another?

Human life goes on best by each of us devoting most of his love and his powers to some few people, and certainly we ought to like one friend better than another, so long as we like that friend for the right thing. If one has more love and tenderness and faithfulness and honour than another, we do wrong not to love him or her for these things more than we love someone else who has less of them.

It is right that love should be rewarded by love, and cheerfulness by cheerfulness. The very fact helps and encourages people to show their best side to the world, which would be scarcely worth while if people were just as fond of us whether we were kind or cruel.

One of the most important facts in our lives is that our qualities call forth the same qualities in other people. The loving mother makes loving children; and cruelty generally breeds cruelty.

Do Microbes Help to Make Cream?

Strictly speaking microbes do not help to make cream. Cream is in milk at the moment it leaves the cow, and all that happens to it afterwards is simply a change of place. At first its globules are mixed through the milk; but as they are lighter than the rest of the milk they rise to the surface by degrees, and form a separate layer.

But in the making of butter and cream cheeses microbes are added to turn the milk and cream sour, and the flavour of the butter or the cheese depends on the kind of microbe which has been added. Some dairies cultivate special microbes so as to obtain special flavours.

Why Can we Hear a Noise Like Waves in a Sea-Shell?

The pretty idea in this question is just a poet's fancy, and nothing more. For the truth is that we only imagine a likeness between the sound of the shell and the sound of the sea. Really the shell is one of those things which can pick up and make stronger certain kinds of sounds. The wooden part of a fiddle does this: if you take it away and play on the strings without it they make a feeble, thin, unpleasant tone. The things *that make sound resound* are called *resonators*. The body of a fiddle is one, the sounding-board above the pulpit in churches is another, and a shell is another.

What the shell picks up are the very slight sounds going on all about us. It is really never *quite* quiet, and the shell picks up sounds so slight that we do not hear them at all without the shell. In America they built a sound-proof room. People inside it heard their own hearts beating, and so on. But there were cut out of the room all the tiny noises that usually go on, and when a shell was held to the ear nothing at all could be heard. The shell is only a telephone, and if no sounds come to it it is silent, and can give nothing out.

What Makes an Electric Lamp Glow?

The electric light is quite different from the light of a fire, or a lamp, or a gas-jet, because it is not made by anything burning. So electric light does not use up the air of a room. When we turn it on we simply allow the current to run through the lamp. When the switch is off the current does not run through the lamp, for there is a space between the metal wires that carry it. When we turn the switch on, we make the connection between the wire in the wall and the wire that runs to the lamp. When the current runs through the lamp it meets with a certain amount of resistance from the thin wire in the lamp, and the electric current in forcing its way through the circuit makes this wire so hot that it glows.

We know that we cannot get something out of nothing, and what happens here is that part of the electricity is changed into the heat that makes the thread inside the lamp glow. The greater the flow of electricity, the hotter and brighter the wire thread gets, and the more electricity is used up. If there were air in the lamp, the thread would burn away in a moment; but the lamps are so made that there is almost no air at all inside them. If we break the glass of the lamp, and admit the air, the thread will burn and snap in a moment when we turn the current on.

Why do Our Hands Keep Dry When Dipped in Quicksilver?

Mercury, or quicksilver, is a true liquid, as water is, and it can flow as water can, if the conditions are right. When we dip our hands in water and withdraw them, the water clings to the skin; so that it wets the hands. There is sufficient attraction between the water and the surface of the hands to make this possible; though, even in the case of water, it all depends on circumstances. For instance, we may coat our hands thickly in oil, and then we find that the attraction between the water and the oil is so small that our hands are not wetted, or scarcely wetted at all. Mercury behaves to the hand in its ordinary state as water does to the oil-covered hand. Also, mercury is a very heavy thing, and tends to fall back when the hand is withdrawn, even though some of the mercury may try to cling to it. Even when the hand is perfectly clean it is still much more oily than we think, and it is not possible to free the hand entirely from oil, for the skin of the hand actually produces oil to some extent. But if we use something that is *quite* free from oil, we can sometimes get mercury to flow over it and wet it, in just the same way as water would, though never so freely as water will.

Why Can we Put Out a Candle by Blowing?

The candle, like a fire, goes on burning after it is lit because it produces heat enough to warm the stuff of which it is made up to the temperature at which it combines with oxygen. The wax of the candle is made into gases by the heat, and these hot gases are burned with the oxygen of the air. If we blow the candle, we blow away the hot gases with our breath, and, though our breath is warm, it is not nearly warm enough to keep the candle alight. What really happens is that, by blowing, we lower the temperature of the candle to a point below that at which the stuff of the candle and the oxygen of the air are capable of combining with each other.

How does a Cow make its Milk?

There are certain parts of the body which exist to produce things the body needs. These are called glands, and they are the chemists of the body. Some glands exist in order to filter out from the blood things which it does not want. Many glands in the skin do this. Other glands—like one just below and in front of the ear, which gets swollen in case of mumps—makes the saliva that pours into our mouths when we eat, and helps us to soften and digest our food.

But there are certain glands which are a thousand times more beautiful and wonderful than any other because they do not exist to serve the body to which they belong, but *for the sake of others.* They show that Mother Nature is on the side of love.

When the cow has a calf the gland called the udder, which makes milk, becomes active, and has the wonderful power of transforming the blood that passes through it into milk for the young calf. The calf's mother eats grass, and turns it into blood; and then the udder turns the blood into milk, which is the best food for calves, as it is also the best food for us. If we could see the udder under the microscope we should see the cells near the blood-stream taking out of the blood everything they need in order to make milk, which passes directly into the calf's stomach—pure, warm, and containing everything the calf needs for its growth.

Would the Earth seem to be up in the Sky if we were on the Moon?

Yes? The Earth is a ball, and anyone looking out from the surface of that ball gets the notion, of course, that he is in the centre of all things, and that they are hung in the sky on all sides of him. We see things up in the sky, and not down in the sky, because the Earth interferes with our view. If the Earth were transparent, we should see the Sun and Moon when they are *down* in the sky, underneath our feet, just as now we see them *up* in the sky.

This must be true not only of the Earth but of any other heavenly bodies. Up and down have no real meaning in themselves, but merely refer to our point of view. The Earth, seen from the Moon, would appear far larger than the Moon does to us, and correspondingly bright. There would be no mistaking the difference between land and ocean. Through telescopes the largest buildings of a city could be made out. The greatest difference would be, perhaps, that an observer on the Moon would so often find the details of the Earth hidden by clouds. As the Moon has practically no atmosphere her face is never clouded to our view; not even to the very slight extent that Mars sometimes is. But anyone on Mars or the Moon would wonder what it was like to live on a world so often covered with thick clouds as ours is.

Why Cannot we Grow a Third Tooth?

When we are born we have, hidden in our gums, all our first teeth. These twenty teeth are already completely formed in all their parts at birth, and have only to get through the gums in order to be seen. A baby gets its food by sucking and not by biting, and so it is really better that its teeth should be out of the way at first, below the gums. Still deeper in the gums, below each of the first teeth, and also farther back in the jaw than the primary teeth extend, are little groups of cells, called tooth-germs, which will some day make the second set of teeth. There are thirty-two sets of these cells; and though none of them are teeth, they have in them the power of making teeth.

We should take great care of the first teeth of children, brushing them, and having them filled if they decay, even though we know that they will fall out soon; because if they are neglected the tooth-germs underneath them are apt to be injured, and when the new teeth come they will be irregular, or have thin, soft, crumbly outsides, which easily break away or decay. Now we see why a second tooth grows when the first falls out or is pulled out. But no third tooth will grow when a second tooth has been lost, because there is no other tooth-germ for it to grow from.

Why is a Fire Pail Filled with Sand?

In offices and large buildings where electricity is used there is always a danger of fire through what is known as a "short circuit." Water is a conductor of electricity, and its use in this kind of fire might only serve to spread the electric current, and so increase the danger. Sand, on the other hand, if applied at once, would soon smother and exextinguish the flames before serious damage was done.

What are the Greek Kalends?

There are none. In the Roman Calendar the first day of each month was called the Kalends, and from these the days of the previous month were reckoned backward to the *Ides*, which in most months corresponded to the thirteenth day of the month, though in March, May, July, and October they fell on the fifteenth. Thus, when the soothsayer in Shakespeare's play warns Julius Caesar to "Beware the Ides of March," he means that Caesar should look out for danger on the fifteenth of that month. The ninth day before the Ides was called the Nones, which in all but four months was the fifth day of the month. In March, May, July, and October, however, they fell on the seventh. As the first days of the months were called Kalends it came about that a table showing for the current year the succession of months, and all the days in each month, was, and still is, called a calendar.

The Greeks had nothing corresponding to the Roman Kalends, and so there has arisen a saying that when anything is indefinitely adjourned it is postponed to the Greek Kalends, meaning to a non-existent date. To say that a debt would be paid on the Greek Kalends meant that it would never be paid at all.

Why do the Houses Seem Crooked When we Look Across a Fire?

Light is always bent in some degree by the things through which it passes—as when it passes through the air to our eyes from a star, or when a stick seems to be bent in water. Now, so far as light is concerned, the air is different according to its warmth. Warm air is less dense than cold air, and when light passes from one to the other its path is more or less bent. When we look at the houses through the hot gases that rise from a watch-fire, the light, as it travels from the houses to our eyes, is bent in passing from the cold air through the hot gases, and is bent a second time in passing from the hot gases through the cold air again.

Also, as the fire does not give off the same quantity of gas at every moment, the light is bent in different ways, and not only do we see the houses crooked, but they seem to change their crookedness even while we are looking. This bending of the rays of light is called *refraction*, which simply means breaking, and is very important in every way. Just as we see the houses crooked when we look at them through the gases from a fire, so we see the stars crooked when we look at them through the air. The light from the stars is bent as it passes through the air, and so we do not see stars where they really are, but always a little distance from the real place, because of the *refraction* of their light before it reaches your eyes.

What Makes the Heart Beat?

It would take a big book to do justice to this question. We know positively that the heart can and does beat in an independent way quite apart from the brain or the rest of the body. The heart of a frog or a bird or a rabbit, for instance, can be completely cut out of the body, and will lie beating in the hand for a long time. This proves that what starts the heart-beat is in the heart, even though we know the brain can make the heart beat faster or slower, or can even stop it.

When we examine the heart of any animal, we find that it has a large number of nerve cells. If we cut a heart to pieces, any part which is cut away from the nerve cells stops beating, but any part which has nerve cells in it will go on beating until the heart dies from lack of food. It is very interesting that the heart will go on beating for so long. If we attach tubes to the heart in place of the bloodvessels, and send fluids through it containing common salt and certain other salts which help to nourish it, it will continue to beat steadily for hours or even days. In this way we can study the action of different things on the heart; and it has thus been proved that sugar is a valuable heart food, while alcohol is no food to the heart at all.

Should we Have Plants in a Sick-Room?

As long as there is sunlight, it is very good to have plants, especially with plenty of green leaves, in a sick-room. They are beautiful, and that is good. Most wall-papers with patterns on them are enough to drive an invalid crazy; but when the eye falls on green leaves it is always soothed and cheered. But a more important reason is that the daylight acts through the green stuff of the plant so as actually to make fresh oxygen in the air of the room by breaking up the carbon dioxide gas which the ill person breathes out from his lungs. Plants in the daytime help to ventilate the room

How can a Donkey Eat a Thistle, Thorns and All?

If you will take the trouble to look carefully into the mouths of different animals, you will find that the inside of the mouth differs widely according to the kind of food the animal lives on. In your own mouth the lining of the mouth is quite soft and easily injured, whereas in some other animals the membrane which lines the mouth is extremely tough, and covered with thick scales, enabling the creature to crush foods which would injure a tender mouth. This is the case to a certain extent in cattle and in all animals which feed on hard kinds of grass, and the donkey's mouth is another example of the same kind of thing.

Why Does the Sea Change Colour?

On a black night, when there is no light for the sea to reflect, the sea looks black. When the sky is grey the sea reflects the light that falls on it, and looks grey. The colour we usually think of as the colour of the sea is blue, because the sky is blue, or ought to be; and, if blue light falls on it, it is blue light the sea reflects. Yet sometimes the sea is green, though the sky is never green.

Parts of the sea are shallow, especially near the shore, and may be so shallow that some of the light from the sky may pierce the water, reach the bottom, and be reflected from it to our eyes. So, of course, the light will be changed, partly according to the colour of the bottom of the sea, and partly because of the greenish tinge of sea-water itself. Besides all this, we have to remember that the same part of the sea on a coast we know well may be of a different colour on different days, even though the water is the same and the colour of the bottom is the same, because the Sun is clouded or is in a different part of the sky, and the light strikes the bottom differently. Thus, there are many different things which will affect the colour of the sea, and that is why its colour changes so much and so often.

Why is Iron-Roofing Corrugated?

Corrugated iron is a very cheap and convenient material for roofing, and it is specially designed also for keeping out the wet. The nails that keep the roof in position are not put through the gutters of the iron, but through the rising part. So, as the rain runs down the gutters, it does not eat away the holes of the nails and get through the roof.

Why is it Easier to Walk on a Rough Surface than on a Smooth One?

The answer is that roughness, whether it be on the ground or on the soles of our boots, means friction, and without friction we cannot walk. Friction, or *rubbing*, means that the boot cannot slide along the surface of the ground, but stays without difficulty wherever we put it, and so walking is easy.

Why do our Hands Become Warm After Playing with Snow?

It is wonderful that our hands should become warm after playing with snow, for the cold snow must take heat away very quickly from our warm hands.

The warmth of our hands is derived entirely from the blood, except at times when something hot is actually shining on them. Therefore, for some reason or other, a much larger amount of blood than usual must be flowing through our hands. The blood is no warmer in itself, or the whole of the body would at once notice it, but what happens is that the hands are getting a richer and quicker supply of blood to make them warm.

The effect is the same as the delightful glow we feel after a sea-bath. The brain has the duty of taking care of the skin, as of every other part of the body. When the skin has been chilled, its life has been heavily taxed, and it will suffer unless it is compensated. So the brain orders the small blood vessels in the skin, wherever it has been chilled, to relax and widen so that the warm blood is able to circulate quickly through them.

Does a Cloud Weigh Anything?

A cloud floating in the sky seems as if it had no weight, and we often use the expression "as light as a cloud" to describe anything very light indeed. But a cloud has actual weight, for it consists of particles of condensed water, and a good-sized cloud may weigh tons.

It may be asked why, if a cloud is heavy, it floats, and does not fall, and the answer is that a cloud only seems to float, and that all the time the little drops of water in it are slowly falling. Even the drops of water in a fine mist are falling. Clouds are not only rain-clouds but *raining* clouds, and when they seem steady and still that is because new drops of water condense and replace the falling drops, which often evaporate as they fall and never reach the ground.

Why Does a Duck Keep Dry in the Water?

There are really several reasons. For one thing, the feathers which cover the body of the duck are so thick that the water on which the duck is floating does not come in contact with the air underneath the feathers, so that the skin of the duck is kept dry and warm. But this would not be enough by itself. There is a structure called a gland, which has an opening on the back of the duck near the tail. The business of this gland is to make oil, and quite a lot of oil is produced from it. This oil is used by the duck to smear over its feathers to make them extremely smooth and slippery. Now, it is a very curious thing that oil and water will not mix, and so the duck, or any other water-bird, having covered its feathers with a thin layer of this oil, prevents the water from wetting the feathers.

What Is An Oak-Apple?

Cherry galls on oak trees, or oak-apples, as most of us call them, are the homes of insects. A little gall-fly pierces a hole in a twig of the tree and in it lays one egg or more. Either the irritation from the wound in the twig or the action of the egg itself causes the twig to form a growth round the egg, hard and smooth. The egg hatches, and a grub appears. It eats the inside of the oak-apple, and then may bore its way out into the world, or may wait until it has changed into a perfect insect, and then come out. There are scores of sorts of gall-flies.

Why do the Trees Not Die in Winter Like the Flowers?

This question depends on a mistaken distinction between trees and flowers.

A flower is only part of a plant; it is a special part, or organ, made by the plant for a special purpose, which is the production of seeds to produce new plants. We must not speak of the flower as if it were a plant. It happens to be conspicuous because the help of insects is required in the preparing of seeds, and the flower is a flag made to attract the insect's attention But there are many flowers which do not require the help of insects. These flowers need not be conspicuous. All trees have flowers, and in most cases they are of the inconspicuous kind. But there are many exceptions to this rule as we know quite well

Once, however, we know that trees have flowers, we do not need telling that these flowers die in the winter, just like the flowers of other plants. But the plant or tree does not die because the flower dies. The tree goes on living, and will produce new flowers next year; and that fact also may be true of many of the smaller kinds of plants in our gardens.

Why Can we Not See the Bottom of a River?

When a wave passes from one kind of stuff into another, part of it is usually turned back, or reflected. Light is a kind of wave, and it follows this rule. In passing through a window some of it is bent back, so that we can sometimes see our own face in a window—as in the window of a railway carriage in a tunnel. The same thing happens when light passes from air into water; part of it is bent back, and it often happens that so much will be bent back that you will see the light from your own face as if you were looking in a mirror. But exactly what happens depends on many things; and if you try in these cases, and if the light is coming in the right direction, you will often be able to see, not the light thrown back from the surface of the water, but the light thrown back from the bottom of the river

How do we Give One Another Colds?

We give one another colds in many ways, by passing our cold-microbes on to others. People are not nearly careful enough about safeguarding other people when they have colds. At least, if we do not keep ourselves away from company, we should be careful about not coughing or sneezing or even speaking opposite the faces of other people in case they catch our cold. The time will probably come when people who have colds will not be allowed to send handkerchiefs to the laundry, where now women daily catch all sorts of diseases from the clothes they wash, which have come from many different homes where there is sickness.

Does Magnetism Wear Away?

Every magnet, whether natural or artificial, tends, in time, to lose its magnetic power owing to a gradual re-arrangement of the molecules composing it; but the power of a horseshoe magnet can be preserved by laying a bar of soft steel known as an armature, across its end, so as to form a bridge between its two poles. A magnet with its armature in position, is called a closed magnet.

Does it Ever Rain Frogs?

Showers of frogs have been frequently reported; but most naturalists do not believe that anything like a shower of frogs ever occurs. The frogs are rarely, if ever, seen actually falling; they are generally found on the ground after a shower of rain, as if they had fallen; and it is much more likely that the rain has brought them out of their hiding-places than that they have come from the clouds.

Nevertheless, it is not actually impossible that frogs, especially small ones, may occasionally be drawn up into the air by a whirlwind which has sucked up the water in which they live, and in such a case, of course, they would fall with the falling water. It is well known that fish are sometimes sucked up with water in this way, and fish weighing as much as three pounds apiece have been carried for hundreds of yards in the air.

Therefore, though it has not been proved that it ever "rains frogs," and though most cases reported of showers of frogs have not been "showers" of frogs at all, nevertheless it is possible that frogs may occasionally be sucked up by whirlwinds and then fall as if they were falling from the sky.

Why Does Manure Make a Plant Grow Faster?

Do we know what growing is? It is a very wonderful and complicated process which takes place in both plants and animals, and depends on proper kinds of food, and sufficient quantities of it, being supplied to these living things. If plants are neglected, or if children are half-starved, they grow up puny and weak and ill-formed, and the way to prevent that is to supply them with plenty of good food and fresh air. But, in addition, every kind of living tissue has a special kind of food which suits it better than anything else, and the more it gets of this kind of food the more perfectly it grows. What we usually call manure is more or less decayed stuff—the bodies of other plants or other animals that have died.

This is just the food which is more nutritious than any other for plants and crops, so when the gardener or the farmer wants to grow his plants or his crops as quickly as possible, and to get the best he can, he finds out what kind of foods suit them best, and these he gives them in the form of manure. Nowadays there are many kinds of specially prepared substances which act in this way, and scientific men, by discovering these special foods, have shown us how to grow plants and crops in soils in which they would not grow before.

How Did the Great Coal Forests Come to be Buried?

All the earth that covers the great coal deposits of the Earth's crust, was laid there through long ages by the sea.

Nothing is more certain than that, over every part of what we call the dry land, the sea has rolled for many ages. Probably most parts of the Earth's surface have many times been under water and many times above it. Wherever the sea is, there its water slowly deposits an ever-deepening layer of substances which it has dissolved from the rocks, and other materials which the rivers have brought to it, and yet others which are the remains of creatures living in the depths of the sea.

Then, as the waters roll elsewhere, and the bottom of the sea is uncovered, the surface of these deposits becomes the surface of the dry land. If we carefully study the rate at which the waters are forming deposits today, we can get some very rough idea of the time that has passed since various layers of the Earth's crust were on the surface, as every layer of it has at some time been; and so we can guess that many millions of years must have elapsed since the coal measures were living plants.

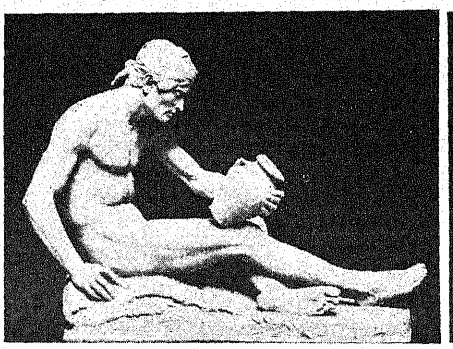
Will the Sun Ever Grow Cold?

There can be no doubt that the answer to this question is Yes. The Sun, the Earth, and the Moon are all made of the same stuff, and they are all cooling down according to the same laws.

The Moon, no doubt, is much the coldest of these three, but that is because it is the smallest, and small things cool down much more quickly than large things, because small things, in proportion to the stuff that is in them, have such a large surface to lose their heat by. The Earth is bigger than the Moon, and therefore not yet so cold. The great planet Jupiter is very much bigger than the Earth, and is still so hot that it probably makes a little light of its own besides what it reflects from the Sun. The Sun is very much bigger even than Jupiter, and so has not cooled down anything like so much. But if we compare it with other stars we can be sure that the Sun is cooling, and one day it must become cold as the Moon.

The Story of the Beautiful Things in the Treasure-House of the World

Evelyn
By Sir W. Goscombe John



The Potter
By F. W. Pomeroy

Sylvia
By C. L. Hartwell

THE SCULPTURE OF BRITAIN

If an artist of ancient days—Phidias or Praxiteles, or one of more recent times—Michael Angelo—could be invited by some magical power to give an opinion on British sculpture, he would probably look round and say, "Where is it?" For these men were children of a race to whom beautiful things were a necessity; in our own case we give them such interest as we can spare when we have attended to everything else. And the sculpture existing in England today is, therefore, in comparison, of so small a quantity that anyone bred of a really artistic people might be forgiven for overlooking it.

For that matter, England is a small place, and the English are in any case more a literary than an artistic nation. Also, they have been trained through many centuries to a thorough insularity. "If I should die," said Rupert Brooke, the young poet who fell in the war,

think only this of me:
That there's some corner of a foreign field
That is for ever England. There shall be
In that rich earth a richer dust concealed:
A dust whom England bore, shaped, made aware,
Gave, once, her flowers to love, her ways to roam.

. . . . . .

And think, this heart, all evil sped away,
A pulse in the eternal mind, no less
Gives somewhere back the thoughts by England given.

Nothing wherein the heart of England beats so warmly has been written since Shakespeare put into the mouth of John of Gaunt those throbbing lines about the precious stone set in the silver sea. Rupert Brooke's sonnet is a clear commentary on the work of our men whose gifts have led them to express themselves in painting or sculpture. Their work *gives somewhere back the thoughts by England given.* That is all. They are not world-artists; they are artists of England. Save our own, there is scarcely a country whose art is not ruled by French influence. England keeps her ancient insularity.

But it must not be thought that, while British art may be considered to be crouching low over green fields, the sculpture of other nations is soaring to a cloudless height. A few wings have flashed, but the sky has soon been left bare again.

We remember from our earlier chapters that really great sculpture has only been produced by a really artistic race, such as the Greeks or Italians, or in countries subjected to a powerful influence, as certain parts of Europe were during the Middle Ages and the Renaissance. It was a wave of the beauty sense, together with a warm, religious devotion, that made those centuries memorable, and raised in France

and England lovely cathedrals and churches where marvellous sculpture is part of the fabric.

We have left the rapture and mysticism of those days far behind. Our ideals have changed. Art has become more homely, less exalted; perhaps we know too much, have made too much progress in science ever again to dream the dreams in stone and colour of medieval Europe.

THE BEAUTIFUL SCULPTURES THAT ARE PART OF THE GOTHIC CATHEDRAL

Seeing that many centuries elapsed between the sculpture of the Gothic cathedrals of England and the rise of a school of free sculpture, we think with pride and affection of the carvings still left from those distant days. A great deal of it was wrought into the actual building; the sculpture was done after the stones were built into the walls. In any of the Gothic cathedrals, such as Peterborough, Lincoln, Salisbury, Exeter, Wells, we can see beautiful sculpture which was part of the architect's thought. And the Gothic law dominated architecture so completely—the law that sculpture must follow the lines of the scheme of the building—that free sculpture was of a very slow growth indeed.

It first took the form of heads of angels and saints—of which, after all our troubles and spoliations, there are thousands left "to joy us," as the old writers would say. We have also a great number of single figures like the lovely pillared Madonna of the Chapter House in York, and those on Henry the Fifth's chantry in Westminster Abbey.

This Gothic sculpture passed through various phases. There was the time when Purbeck marble, a hard tinted shell-limestone quarried in Dorset, was in great demand. A peculiar quality in this stone gave an unusual texture to the carvings, and it also admitted of a polish. A number of our churches and cathedrals still treasure specimens of the work of the Purbeck marble men. There is a good deal in the Temple Church, and in Westminster Abbey.

THE ALABASTER FIGURES THAT TOOK THE PLACE OF MARBLE

Then, somewhere about the year 1300, the fashion of Purbeck marble died out, and sculptors began to work in wood, bronze, and alabaster, as well as stone. The carver in alabaster took the place of the marbler, and his work marked the buildings of several generations. We can go from place to place and pick it out. There is a delightful little Annunciation in alabaster in the British Museum; the head of Edward the Second, in Gloucester Cathedral, is in this medium; and a lovely tomb in Southwell Cathedral. Of the wooden figures very finely carved a good number remain. The best is generally considered that of Archbishop Peckham at Canterbury. Some fine bronze belonging to this period is in Westminster Abbey.

Gothic sculpture in England closed itself up, like a book. Generations passed, empty of gifts, and the years of destruction swept over the land. The Puritans took it as a point of pride to destroy "images" wherever they saw them. The country went through its phase of admiration of foreign artists, like Holbein and Van Dyck. Then came a group of men of varied artistry. There was Grinling Gibbons, sculptor and decorator, one of the most interesting figures in our history, whose work, still existing here and there in England, recalls the spirit of the Renaissance.

WHERE WE MAY SEE THE BEAUTIFUL WORK OF GRINLING GIBBONS

His bronze statue of James the Second in St. James's Park is said to be one of the finest in Europe. The work of Grinling Gibbons can be seen in St. Paul's, Chatsworth, Petworth, Burghley, and at Trinity College, Oxford. After him came Thomas Banks, Joseph Nollekens, John Bacon, and John Flaxman, eighteenth-century sculptors of no great merit, save that they represent a period. Their work was imitative of the classic style. Flaxman had a passion for Greek sculpture, but his art is cold, because behind its classicism there is nothing of the warmth and fulness of the Greek ideal. One of his best groups is the Mansfield monument in Westminster Abbey. The simplicity that he loved is the chief merit of a number of illustrations he made for books like Church's stories of Homer, their style imitative of Greek Vase decoration.

The first Englishman whose work is powerful, and is not to be grouped in a period and valued for the sake of the period, is Alfred Stevens. He is the greatest sculptor of the nineteenth century in England, and, although his work in point of time belongs to yesterday, he is one of the greatest decorators and sculptors of modern times. Stevens lived from 1818 to 1875, and in him our school of sculpture, so interesting today, had its beginning.

There are few makers of statues today who can afford to ignore their debt to Stevens. He worked in Thorwaldsen's studio in Rome, and seemed not to be quite sure whether he would become a sculptor, painter, or architect. His earliest work in England was domestic decoration, and no one thought anything of him. Then it happened that he was given the commission for the monument to the Duke of Wellington, in marble and bronze, in St. Paul's Cathedral. This is one of the finest things in the land, and should be studied by all would-be sculptors.

THE DESIGNS OF ALFRED STEVENS THAT WERE NEVER CARRIED OUT

A great deal of Stevens's power today lies, if one might put it this way, in the spirit of the work he was never able to carry out. His sketch for a memorial for the Great Exhibition of 1851, which was most unhappily rejected in favour of a third-rate production, is now in South Kensington. The Tate Gallery possesses several of his sketches and cartoons. All this artist's creations should be a handbook for the art student—his designs for the decoration of the dome of St. Paul's, the British Museum Reading Room, and his wonderful sculpture designs for Dorchester House. The greatest English sculptor of today (we are not thinking now of the sculptors who really belong to tomorrow), Mr. Alfred Gilbert, owes a great deal to Stevens.

Two other sculptors of a certain distinction belong to Stevens's generation: John Henry Foley, the Irishman, and G. F. Watts, whose work as a painter we have noticed elsewhere. Watts's bronze group of Physical Energy, built for the tomb of Cecil Rhodes, and represented by a copy in Kensington Gardens, is an interesting work. His equestrian group of Hugh Lupus, Earl of Chester, at Eaton Hall, shows the same powerful spring and looseness. There is a bronze cast of his well-known Clytie in the Tate Gallery.

Foley's best work—his statues of Burke, Goldsmith, and Grattan—is in Dublin.

THE MAN AT THE HEAD OF ENGLISH SCULPTURE OF TODAY

The school of English sculpture so ably started by Alfred Stevens is earning a distinction in the opinions of the world today. It is, as we said earlier, essentially English. At the head of the men whose work is beginning to count in the story of art is Mr. Alfred Gilbert.

There is something of the eternal creator in him. He flings his energies joyously and with abandon into whatever may be the business of the moment. One can never feel that this artist groans and sits up late at night to try to find an idea for a group; rather can we imagine the ideas, winged, fluttering about his head, his chief concern to seize on one before the airy visitants melt away. There is a lilt, a rhythm, a colour in his statuary that make us feel if he had not been an artist he would have been a musician. Mr. Gilbert has been under the influences of Florence, Rome, Paris, but they have whispered to his art rather than domineered over it.

The first work to attract the attention of the art public to this artist's work was the group, now well known, of the Mother and Child. Soon after came the bronze statue of Icarus. This is a very beautiful work, fine in conception and feeling, and finely carried out. There is strength as well as grace in the figure, and the wings have a magical decorative quality that subtly repeats the lines of the body. Mr. Gilbert made some excellent busts and statues, like those of Watts, Baron Huddleston, Mr. J. S. Clayton, and a number of memorials which are obviously, at first glance, the work of a man of genius.

THE CREATIONS IN BRONZE THAT HAVE MADE THE FAME OF ALFRED GILBERT

The Fawcett memorial in Westminster Abbey, the Howard statue at Bedford, the Shaftesbury memorial fountain in Piccadilly Circus, and the Queen Victoria monument at Winchester, and that of the Duke of Clarence at Windsor are the chief of his productions of this kind. In future times Mr. Gilbert will probably be most remembered for his Icarus, among the single figures, and among the memorials that of the Duke of Clarence. The Queen Victoria monument at Winchester is also a memorable piece of work; it would show to anyone that this sculptor is primarily a worker in bronze. He gets darting and dainty shapes and fantastic decorations that would be impossible save in metal.

A group of some eight or nine men: Onslow Ford, Sir Hamo Thornycroft, Alfred Drury, Sir George Frampton, Lord Leighton, Thomas Brock, Goscombe John, W. R. Colton, Bertram Mackennal, and John Swan, form the main strength of the British School of Sculpture. The work of

some is past, of others in its maturity. There are a great many other sculptors of the past and present generation, but they have perhaps not yet merited a name and place among the stalwarts.

Sir Hamo Thornycroft had what might be called—thinking of the struggles of some artists—an easy start, for both his father and mother were sculptors. There is a poise, a serenity in his work which sets it apart. It has all been sound and good, and some of it excellent. The Artemis and the Teucer, the memorial to Bishop Creighton in St. Paul's, the Mower and the Sower, two figures of workmen, indicate a sculptor of unusual gifts. The Teucer (which is in the Tate Gallery) deserves to be set among the best sculpture of Europe. In Homer's Iliad we have his story—the bowman who tried nine times to slay Hector. The sculptor shows the man standing, having just let fly his ninth arrow, watching it speed.

There is a pretty story told of the Artemis. The sculptor, at work on the goddess in his studio, was badly in need of a hound for a model, when one was found on the doorstep. She allowed herself to be turned into a model, and when the group was finished she died. The man who tells the story adds that "a Greek would have said, in perfect confidence, that the goddess had sent her, and taken her away again when the work was done."

THE TRUE WEALTH TO BE SEEN IN THE STREETS OF LONDON

Men like Sir Hamo Thornycroft have helped to change, for its good, the look of our capital city during their generation. We pass daily things like the Gladstone group in the Strand, and the Cromwell statue at Westminster, and probably we do not often stop to think how poor we should be without them.

Mr. Onslow Ford's best work was in portrait sculpture, like the statue of Irving as Hamlet in the Guildhall Gallery, the Huxley statue in the Natural History Museum, the memorial to Shelley at Oxford, the Gordon monument at Woolwich, and the Dr. Jowett memorial. Portraiture has always been one of the best aspects of British sculpture, and the men of the present day, from Leighton and Brock down to Mackennal and Colton, are worthily upholding the tradition.

But there is something of a "set-apart" feeling about sculpture which makes it the ideal medium for an allegorical subject. We can see in a marble group a dream, an idea, frozen into stone, suspended; we do not want it any nearer, like a picture on our walls; it is something to look at again and again, generally under varying conditions and in a new element of surprise. That is why sculpture keeps our lives from being too work-a-day. We want to see, in public places, groups like Alfred Drury's work on the War Office, Goscombe John's Elf and The Glamour of the Rose; W. R. Colton's Image Finder, Albert Toft's Spirit of Contemplation. They are not portraits; they are not memorials; they are flights of fancy, poems, songs without words; and sculpture is their true expression.

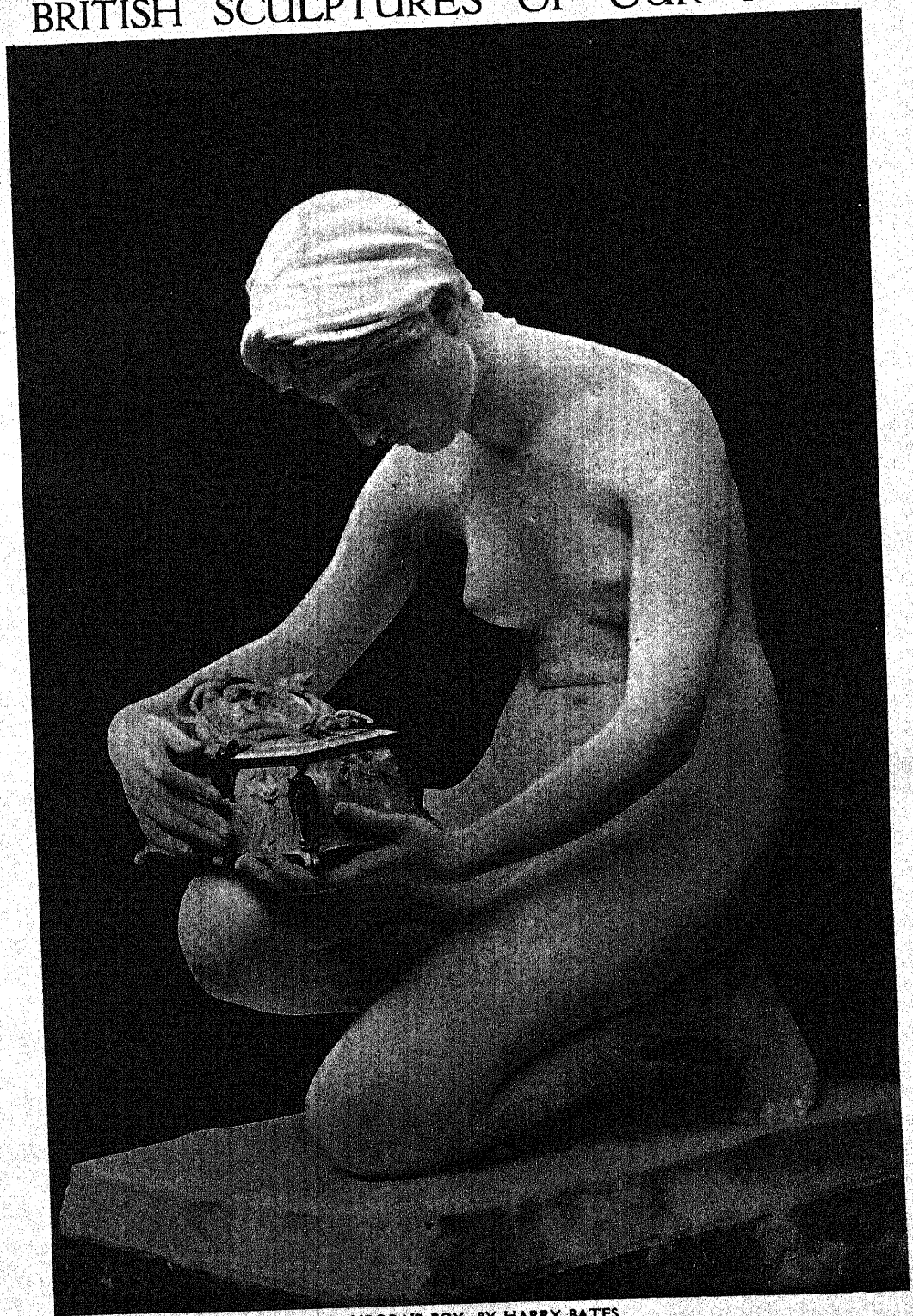
EUROPE'S GREAT DEBT TO TWO SCULPTORS OF ENGLAND AND FRANCE

Amid this group of artists stands out one fine figure of a man who was born to shape animals—John Swan. Animal sculpture is a powerful element in any art, for in it the sculptor achieves something which the shaper of human figures may strive for in vain. A finely-hewed group of animals, tense or springing, is the nearest we shall get to make statuary of hunger and wind and rain, and spring and thunder. For all these elements lie within the animal form, and are forbidden to human beings, who are the children of civilisation. It is an old saying that we see in a work of art that which we take to it, and in animal sculpture we not only see new shapes, but hear new sounds, new rhythms which vibrate back into our own consciousness. Europe owes a great debt to Barye in France and John Swan in England; Harry Bates, perhaps, may count too. His Hounds in Leash, for instance, is very fine.

JOHN SWAN AND HIS WONDERFUL GROUPS OF LIFELIKE ANIMALS

Sculptors who have included animals in their groups have often been content to make them fierce and heroic—first a piece of marble and then an animal. John Swan seemed to build up his groups of actual, rippling muscle and bone. Those who have tried to draw animals like panthers and tigers know how difficult it is to suggest that beneath the sleek skin, which seems to efface all muscles, the flesh is folding and passing on the bones. The Leopard and Tortoise, The Puma and Mackaw, Fata Morgana, and the wonderful Orpheus Charming the Beasts, are among Mr. Swan's best works.

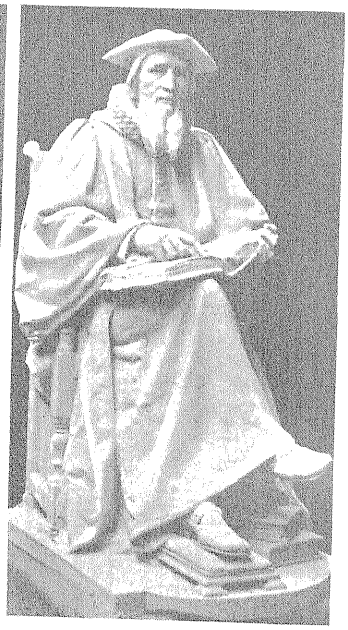
BRITISH SCULPTURES OF OUR TIME



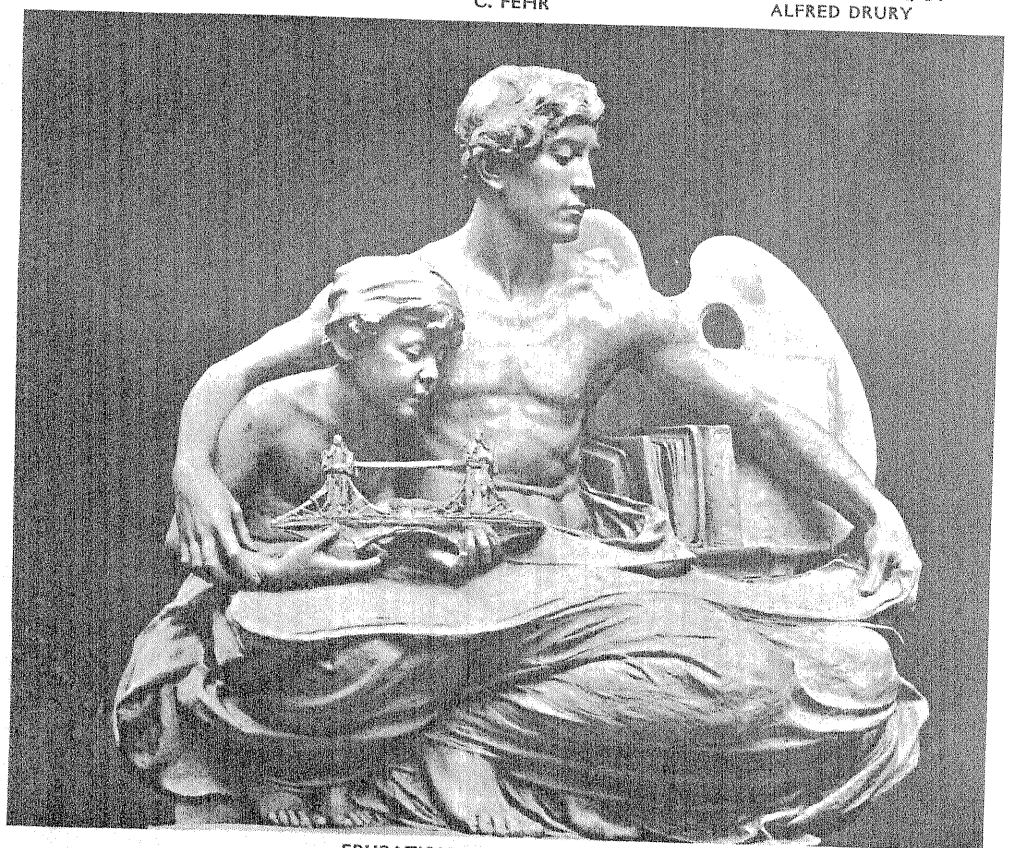
PANDORA'S BOX. BY HARRY BATES
4769

JAMES WATT, BY HENRY C. FEHR

PETS, BY HENRY C. FEHR



RICHARD HOOKER, BY ALFRED DRURY

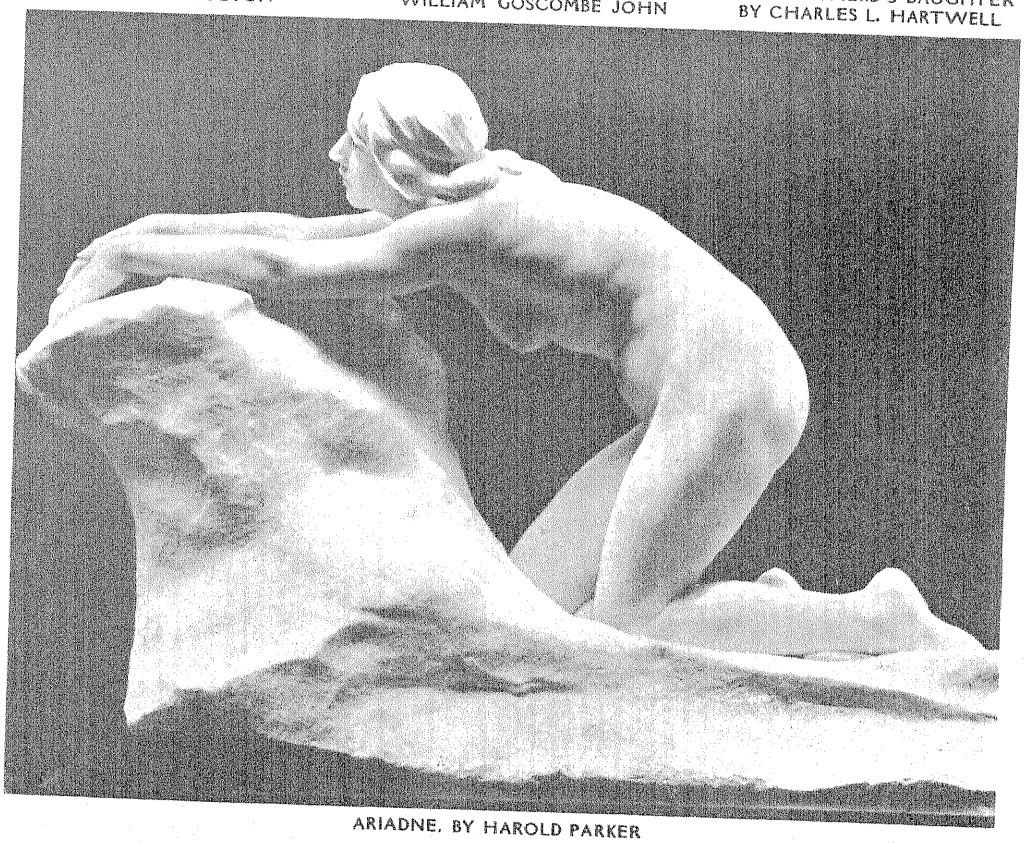


EDUCATION, BY ALBERT TOFT

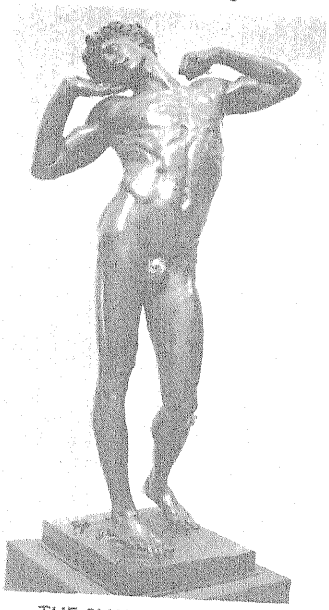
SPRINGTIDE OF LIFE
BY W. R. COLTON

THE DRUMMER BOY. BY SIR
WILLIAM GOSCOMBE JOHN

THE GOATHERD'S DAUGHTER
BY CHARLES L. HARTWELL

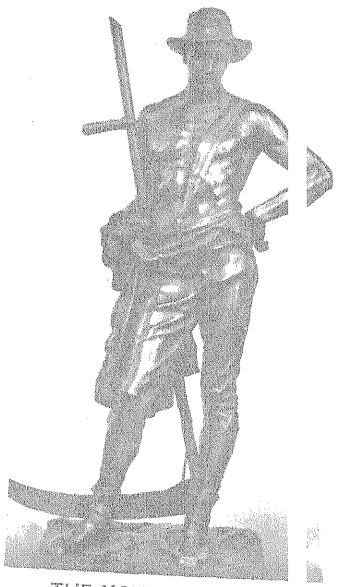


ARIADNE. BY HAROLD PARKER



THE SLUGGARD, BY LORD LEIGHTON

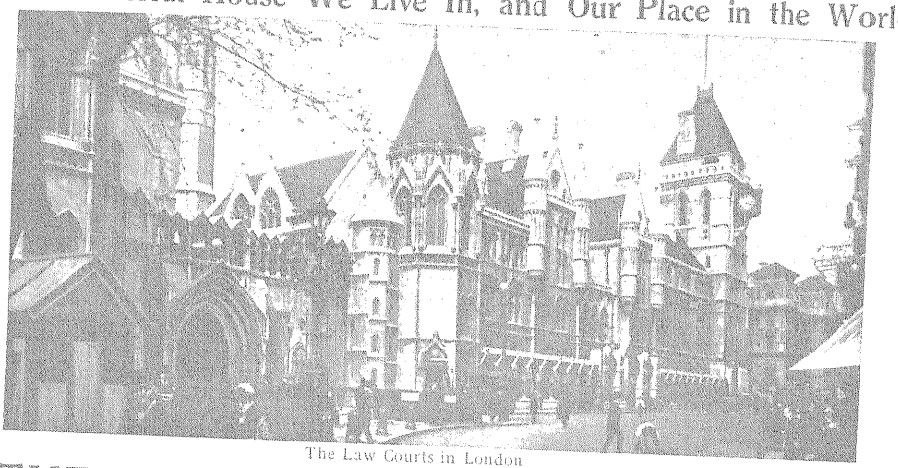
A SHEPHERD PIPING, BY F. W. POMEROY



THE MOWER, BY SIR W HAMO THORNYCROFT

PHYSICAL ENERGY, THE MONUMENT DESIGNED BY G. F. WATTS FOR THE TOMB OF CECIL RHODES

Many of these sculptures are in the Tate and Preston Art Galleries; others are reproduced by courtesy of the artists



The Law Courts in London

THE LAW—THE POWER SUPREME

To the law we have all, from the King on his throne to the humblest citizen, to render obedience.

The word Law comes from an old Anglo-Saxon word meaning *that which is fixed*. We use it sometimes to describe those forces of Nature from which we cannot escape, although we may learn to use them intelligently.

The law we are here concerned with is a body of rules imposed by the will of the nation on every person in the nation. Unlike natural law, it is changeable, and does actually change as men grow more enlightened. The laws of men—the laws passed by Parliament—are made to fit the times men live in.

Thus the law says that we must do certain things, as, for example, to register the death of a person with the proper official appointed as Registrar, or to pay a tax to help to defray public expenses.

The law also says we must *not* do certain things, as, for example, to steal the property of another, or to employ a child to work in a coal-mine.

But the law not only deals with things which must be done and things which must not be done; it concerns itself with the business and social relations of the people. For example, it protects contracts or agreements made between citizens, and provides a remedy when an agreement is broken; it awards compensation when a workman is killed or injured while at work.

Our laws are partly written and partly unwritten. Written law is Statute Law, or, in other words, it consists of Acts of Parliament. A good deal of our English law rests on custom, or what has been done before, and is called Common Law. When a matter is settled under common law it is said to rest on precedent; that is to say, on what has *gone before*. Common law is very largely the carrying on of custom by general agreement. Many parts of English common law, indeed, are rooted in the customs of the old Anglo-Saxons. Customs became laws—based, not on Acts of Parliament, but on precedent.

An enormous mass of doctrine has often to be considered in the decision of a legal point. One lawyer will argue before the judge that the case is similar to that of Jones *versus* Brown (Jones against Brown), heard in 1846, as modified by the case of Black *versus* White, heard in 1902; his opponent will reply that the true precedent is the case of Towler *versus* Tyerman, heard in 1862, as modified by the further decision of the judges in Derry *versus* Ray in 1885. It is a complicated thing, the English common law, and it is preserved by respect for precedent. It is a body of

doctrine administered by judges who follow faithfully in each other's footsteps in preserving the principles laid down in olden times.

Even with regard to statute law, the written law made by Parliament, the judges find much to do in filling in the framework of an Act.

HOW A JUDGE'S DECISION MAY CHANGE THE IDEA OF THE LAW

Words may be used which have not been closely thought out, or are badly expressed, or are capable of different interpretations. In such cases the judge decides what the Act means, and each decision of a judge becomes a precedent guiding other judges as to the meaning of the Act. Sometimes, in this way, a judge's decision so changes the real purpose of Parliament in making the law that a fresh Act of Parliament has to be passed to make the original Act effective. The very greatest care is obviously necessary in drawing up a Bill which is to become the law of the land.

It has been increasingly recognised that the unwritten common law of England has many inconveniences, and from time to time parts of it have been written down or *codified*, to make things simpler and plainer. Until quite recent years the law relating to the buying and selling of goods was largely unwritten, but in 1893 Parliament passed a Sale of Goods Act which embodied this law in a written Statute. Some people think all law should be summarised in a written Code, as was done by the Romans long ago, and for the French in the famous Code Napoléon which has been copied in other countries.

THE LAWS OF ROME THAT WERE SET UP FOR ALL TO SEE

In the early days of Rome the Senate made the famous Code of Laws known as the Twelve Tables, which were engraved and set up in the Forum. This was a written code of justice based largely on existing customs and legislation. The Romans were great lawgivers, and not the least part of their work for civilisation was the respect for law which they created. A thousand years after the Twelve Tables the Emperor Justinian appointed ten learned lawyers to write a new Code, to simplify the mass of laws and customs which had grown up and become unwieldy and obscure. In the year 529 the first edition of the Justinian Code was completed; it was revised and improved in 534, and was a powerful aid to civilisation. It contained much that we could hardly approve today, but, as a great English lawyer (Lord Mackenzie) has written, it has exercised the most beneficent influence on moral and political science, and has introduced "more just and liberal ideas concerning the nature of civil government, and the administration of justice, in all the nations of modern Europe, which rose on the ruins of the Roman Empire."

Even when the barbarians overthrew Rome, they found themselves constrained to respect Roman law. The word justice is a Roman word, and it is not too much to say that Rome gave law to the Western World. No finer words on the subject of law has ever been written than the definition of justice by Ulpian, the great Roman lawyer, over 1700 years ago, when he defined justice as *the constant and perpetual wish to render everyone his due*.

HOW THE COMMON LAW OF ENGLAND HAS IMPROVED WITH TIME

The Common Law of England, then, is a growth which began with our Anglo-Saxon ancestors, which largely rests on precedent, and has been partly embodied in written Acts of Parliament. Much of its old severity has been shorn away, partly through changes effected by the modifying decisions of judges, and partly by Statute. As an example we may notice that under the old common law a debtor could be thrown into prison and kept there till his debt was paid, a cruel and stupid law, which was not abolished until 1869.

It was the imperfection and inequality of the common law in its application to the practical affairs of life that led to the formation of the Courts of Chancery, and so gave us a Court of Equity—equity meaning equality, or fairness. The King, appealed to by sufferers under the common law, would refer them to his Lord Chancellor. Thus the petitioners for justice came to be heard in the Chancellor's Court, which came to be called the Court of Chancery. This court, striving to do justice outside the rules of common law, gradually established rules of equity. The common law judges for long looked with hostility on the Court of Chancery, and unfortunate suitors were sometimes sent backwards and forwards between common law and equity, until justice became a mockery. This state of affairs was ended in 1873 by the Judicature Act, which amalgamated the courts, and laid

down that in any conflict between the rules of equity and the rules of common law, the rules of equity shall prevail.

With the progress of enlightenment the work of Parliament has become increasingly arduous, and each year sees the framing of new laws. There is a greater faith in the efficacy of the law than obtained in the old days, for it is realised that, with the advance of education, people more readily agree to and obey laws made for the general good of society. More and more it is realised, too, that law, while it is in one sense imposed from above, is for the people themselves to make or amend, and when there is wide consent to a law it is not often difficult for Government to enforce it.

THE GREAT BOON OF AN EXTRA HOUR OF DAYLIGHT

A remarkable instance of the authority of law is afforded by the Summer Time Act. Mr. William Willett, a builder of beautiful houses, conceived the sensible idea that clocks and watches should be so adjusted in the summer as to bring the working hours of the day within the compass of daylight. He pointed out that it was only necessary to make a law to shift the hands of the clock in the summer to confer the boon of more daylight on our people. At first the idea of making such a law was derided, and even wise people pointed out that anybody could settle this question for himself by getting up in the morning. But it was pointed out that nothing but a national movement could make the change effective, and the opinion in favour of Mr. Willett's idea spread, until at last the Government took the matter up and the law was passed. It has been a triumphant success, bringing an hour of extra sunlight into the life of ordinary people every summer's day, and the idea has been adopted in foreign countries. Nothing but a law could have done it, and the law is that the clocks should be put forward an hour at the beginning of summer, and back an hour at the end of summer.

Let us now see how justice is administered through the law.

Our High Court of Justice is divided into three parts—the Chancery Division, the King's Bench Division, and the Probate, Divorce, and Admiralty Division.

The Chancery Division deals with contracts, partnerships, trusts, mortgages, and other such matters.

The King's Bench Division obtained its name from the fact that in the old days the King presided over the court of judges on a raised bench. The King no longer administers justice, and the head of the King's Bench today is the Lord Chief Justice, who is assisted by seventeen judges.

THE TRAVELLING JUDGES WHO ADMINISTER THE LAW

The judges of the King's Bench periodically leave London and go into the provinces, to what are called Assize Courts. England and Wales are divided legally into eight circuits, and each circuit is visited several times a year by two judges, one trying cases of crime, while the other tries what are called civil cases, or disputes in which no crime is involved. When the visiting judge comes to the Assize town, he is received with great ceremony to mark respect for the law.

The Probate, Divorce, and Admiralty Division sits in London only, and is solely concerned with disputes about wills, marriages, and shipping. Two judges are specially appointed to it.

When a case has been tried in one of the three divisions of the High Court, and a verdict has been given, it is open to the loser to appeal to a higher tribunal called the Court of Appeal. The judges of the Court of Appeal, called Lords Justices, rank above the judges of the High Court, and are selected from judges of great experience and repute. The chief judge of the Appeal Court is called the Master of the Rolls, and he ranks next to the Lord Chief Justice.

WHAT IS MEANT BY AN APPEAL TO THE HOUSE OF LORDS

If he is still dissatisfied with the decision of the Court of Appeal, the loser of a law case (the litigant), has a right of appeal to the House of Lords. This does not mean that his case goes before the House of Lords *sitting as a part of Parliament.* It means an appeal to the House of Lords *in its capacity as a Court of Justice.* To understand that we have only to remind ourselves that originally Parliament consisted of the King sitting in council with his judges, bishops, and certain peers, to whom the "commons" were admitted. The House of Lords sitting as a final Court of Appeal is an ancient survival from the days when the Court of Parliament and the Court of Justice were one and the same.

As we saw when considering Parliament, the judges were originally Lords of

Parliament. This ceased to be the case, but certain of our greatest judges are still created peers, and constitute the nation's final Court of Appeal. They are called Law Lords, and have the Lord Chancellor, who is always a lawyer, at their head. That is what is meant by an appeal to the House of Lords, and we must not confuse it with the House of Lords sitting as part of Parliament. It may be mentioned that the Lord Chancellor is the only judge in the land who is actually chosen as a political officer of State; and many people think that this arrangement should have long ago come to an end, for it leads to the practice of the head of our judicial system making party speeches.

Sometimes cases of importance are the subject of appeal first to the Court of Appeal itself and finally to the House of Lords, and at times the higher court reverses the verdict of the lower one.

THE POWER OF PARLIAMENT THAT LIES BEHIND THE JUDGE

British justice stands high in the esteem of the whole world, and our judges have earned an unrivalled reputation. A British judge is appointed nominally by the King, but actually, in practice, by the Lord Chancellor or the Prime Minister. Once he is appointed he cannot be removed from his office except by the decision of both Houses of Parliament. This it is that strengthens the judge's fearlessness and independence in administering the law. Not even the King himself has power over a judge; if we can conceive such a situation arising the judge might order the King out of his court.

In a great nation the number of disputes about contracts, debts, injuries, and other matters is very great, and if all the legal cases arising out of them were tried in London, or at the Assizes, we should need a very large number of High Court judges. There have been set up, therefore, minor courts of justice called County Courts. There is not simply one for each county, however, as the name seems to suggest. The country is divided into about five hundred districts, and the County Court judges go on circuit through them.

Only civil disputes are decided in these County Courts, and they deal chiefly with minor cases in which sums of not more than £100 are involved. If a person is dissatisfied with a County Court verdict, he can appeal to the High Court, but this is rarely done. The recovery of small debts is the chief sort of case which occupies the time of these courts.

Then there are the small criminal cases. It would be very stupid if judges of the High Court had to sit in State to try a pickpocket, or to enquire whether a man did or did not, without just cause, knock another down, or to hear the complaint of an Inspector of Nuisances.

THE OLD ROMAN NAME WE STILL GIVE TO SOME OF OUR JUDGES

Such cases are disposed of by courts known as Petty Sessions, presided over by magistrates—the word given by the Romans to their administrators of the law. It is a very fine word, and it may seem strange that we should apply it to minor judges, but in the old days the magistrates had very great powers.

In country places, the Court of Petty Sessions is presided over by the Justices of the Peace, as we call our unpaid magistrates. These Justices of the Peace, who proudly place the letters J.P. after their names, are appointed from among men or women of good repute, and usually they know little or nothing of the law. For legal knowledge, therefore, they have usually to rely on the Clerk of the Court, who is a trained lawyer, and who tells them what they can and cannot do.

In the large towns, the Petty Sessions Court has so much work to do that a paid magistrate (called a stipendiary magistrate) is appointed to do the work. Before these Petty Courts the police bring minor disturbers of the peace to be summarily dealt with, and we therefore often hear them called Police Courts.

Not only minor offenders appear before the magistrates, for the police make their first charge against a prisoner suspected of grave crime at Petty Sessions. After hearing the case the magistrates, if convinced that the matter is too serious for their decision, commit the prisoner to await trial either at Quarter Sessions or at the Assize Court.

THE COURT OF QUARTER SESSIONS AND WHAT IT DOES

The Court of Quarter Sessions takes its name from the fact that it is held once a quarter. The judges at Quarter Sessions are Justices of the Peace, as at the Petty Sessions. This court has power to deal with all but the most serious cases of crime. In the big towns the Court of Quarter Sessions is presided over by a judge who is called the Recorder.

Yet another minor court remains to notice—the Coroner's Court. These courts conduct inquiries into the cause of death in every case where a person is killed by accident or violence, or where the cause of death is unknown. The Coroner is appointed by the Local Authority, and has power to summon witnesses and to take evidence on oath, and if a trial follows his enquiry, which is called an Inquest, he sends a written record of the evidence of the witnesses (which are called the depositions) to the High Court judge who will try the case.

THE WAY IN WHICH TRIAL BY JURY WOULD PROBABLY BEGIN

In trying criminal cases, and in many civil cases, the judges are aided by an ancient institution called the Jury. The jury consists of a body of men and women, usually twelve, who are chosen and sworn to tell the truth about the matter of the trial upon the evidence put before them. Service on juries is incumbent upon most citizens, and when summoned to serve citizens who fail to attend are liable to heavy fines.

The jury system is exceedingly important, yet no one seems to know exactly how it arose, though it appears to have had its origin in customs introduced into England by the Normans. All criminal trials at Assizes and Quarter Sessions are jury cases, and juries are also empanelled in many civil cases. Coroners, too, usually make their enquiry with the help of a jury.

The verdict of a jury in criminal cases must be unanimous, which not infrequently leads to failure to arrive at a verdict at all, when a fresh trial before a new jury must take place. This custom seems to have originated in the old idea that before a citizen could be condemned as guilty *twelve good men and true must be agreed that he is guilty.*

THE INFLUENCE OF THE JUDGE ON THE VERDICT OF THE JURY

It is the jury which decides questions of fact, but in practice the judge has much to do with the verdict. The judge decides what evidence is admissible, and the last words spoken to the jury are in his summing up of the evidence. The manner and matter of the judge's utterance, therefore, necessarily weigh very heavily with the jurors.

The greatest uncertainty often attaches to the issue of a trial in the High Court, or even in the County Court. Wise lawyers, therefore, advise their clients never to take a case into court if it can be avoided.

We should not make the mistake of considering the law merely as bearing on disputes between private persons. Such disputes are inevitable, and the processes of law often have to be used to settle them. The main part of the law, however, is concerned with making rules which govern the citizen in his relations with society, which means with his fellow citizens. The State uses all its power to enforce the law, but can only do so when the law has the consent of all good citizens.

Professional lawyers are divided into two classes, solicitors and barristers. A solicitor gains the right to practise his profession by passing the examination of an institution recognised by the State, called the Incorporated Law Society. A solicitor will advise us as to how we stand in relation to the law, and his knowledge enables him to draw up such documents as wills, agreements, and contracts in legal form. A solicitor is also entitled to act as advocate and plead the case of a citizen in a case tried at Petty Sessions or County Courts.

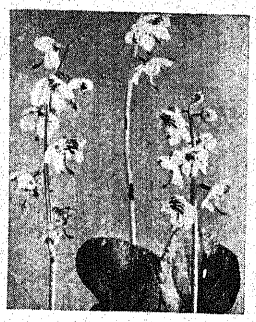
THE WORK OF THE SOLICITOR, AND WHAT THE BARRISTER DOES

In the High Court or Court of Appeal, however, the advocates are called barristers, and solicitors are not allowed to plead in these courts. In such cases the solicitor prepares the case and gets the evidence together, and the barrister appears in the Court, wearing a very becoming wig and gown. Barristers are admitted to practise by any one of four very old societies, known as Lincoln's Inn, Gray's Inn, the Inner Temple, and the Middle Temple. When barristers are admitted they are said to be *called to the Bar.* Barristers of considerable reputation are raised to the rank of King's Counsel, and use the letters K.C. after their names. They wear silk gowns in court, and the honour of being made King's Counsel is therefore sometimes called *taking silk.*

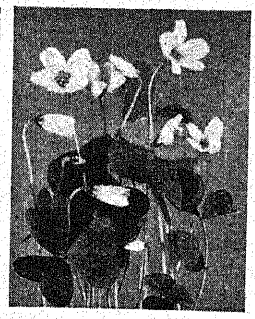
It is not actually necessary in "going to law" to engage either a solicitor or a barrister, and now and then we see a citizen conducting his own case, even in the High Court. But it is a risky experiment, because of the great difficulty and complication of the subject. Very poor people have the privilege of taking proceedings in the courts without paying fees, and with voluntary legal help.

WILD FLOWERS OF THE WOODS

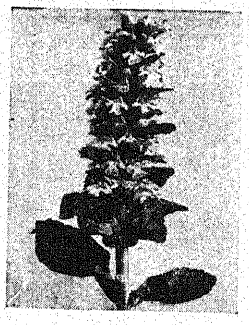
TWAYBLADE



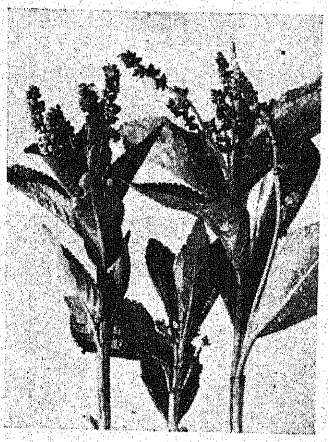
WINTERGREEN



WOOD SORREL



COMMON BUGLE



DOG'S MERCURY

WOOD ANEMONE

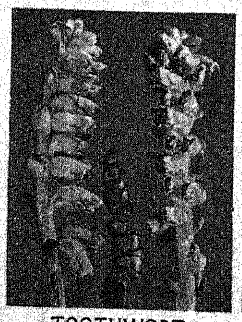
RED CAMPION

WOOD BETONY

BUTCHER'S BROOM

NETTLE-LEAVED BELLFLOWER

WILD BLACK-CURRANT



TOOTHWORT

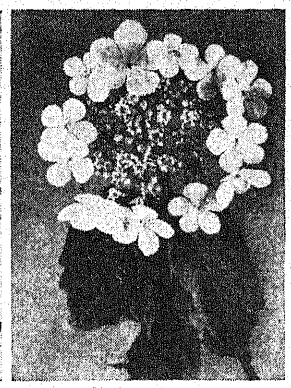
SPURGE LAUREL

BALSAM

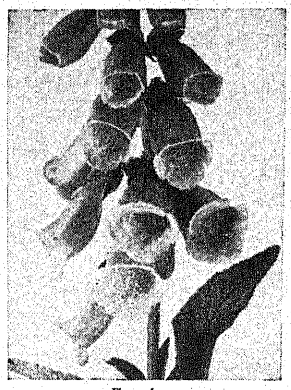
HONEYSUCKLE

The Story of the Marvellous Plants that Cover the Earth

Wood Spurge



Guelder Rose



Foxglove

FLOWERS OF THE WOODLAND

THE woodland to most people is the region of spring flowers, for those plants stand a better chance of blossoming there which flower in spring, when there are no leaves on the trees, and the sunshine can get to them unimpeded. There are, of course, summer flowers in the wood, but these will be found mostly in the open spaces, where the trees do not shut off the light and sun, as they do in the thicker parts of the wood.

Perhaps the flowers that most readily come to our minds when we think of woodlands are the daffodils and bluebells. They are certainly among the loveliest and most striking of woodland flowers.

The daffodil is a member of the amaryllis family, to which belongs also the snowdrop, another delightful and ever-welcome spring flower, generally the earliest of all the flowers to bloom, for we may frequently gather snowdrops in January.

The daffodils are borne singly on a long and rather flattened flowering stem. In the bud stage the blossom stands erect, but as it opens it becomes almost horizontal, and turns toward the light. The large, yellow trumpet is a wise provision of Nature to ensure fertilisation, for when the daffodil blossoms there are not many insects about, and so the flower is large to offer a welcome to all. In the daytime the honey bee and some of the wild bees are attracted to the flower in search of nectar, and at night the moths are able to see the pale yellow blossoms quite easily.

The bulb is very interesting and well worth examining. It is not a root, but an underground bud, consisting of a short, thick stem, covered with leaf scales, which contains the nourishment for the flower.

The snowdrop, though found growing wild, is probably not a native plant of Britain, but has escaped from gardens and multiplied in the wild state. It has a small bulb which every year produces a scale leaf, two foliage leaves, and a tall flowering stem that bears a single flower.

The swollen bases of the foliage leaves and the flowering stem form the fleshy scales of a new bulb. The white part of the flower is made up of three outer segments, large, spreading, and very white, and three inner segments, which are shorter, erect, notched, and greenish. The flower opens and closes according to the temperature; warmth causes the segments to grow more rapidly on the inner side, and so to curve outwards, and this exposes the inner parts of the flower to the sunshine. The snowdrop is fertilised by bees, which land on the outer segments, grasp the inner ones, and bring a shower of dusty pollen on their heads, which they carry to another flower.

The bluebell of the woods is the wild hyacinth, a member of the lily family, and quite a different flower from the bluebell of Scotland, which is the harebell. Like the daffodil, it springs from an underground bulb, and has long, narrow leaves, with veins running straight up from the bottom to the top, while from the middle of the bulb rises the flower stalk. The flower is constructed very much like the daffodil, with a trumpet made up of three outer and three inner leaves, joined at their bases. The flower stalk is erect on the stem till the flower opens, when it bends down, the trumpet hanging with the opening at the bottom, so that the rain cannot enter and spoil the pollen. The flowers, which are generally purplish-blue, are sometimes pink, or even white.

THE BUTCHER'S BROOM AND HOW IT GOT ITS CURIOUS NAME

Another member of the lily family found growing in the woods is the butcher's broom, and it is one of the very earliest flowers to blossom, being in bloom often in January or February, and sometimes as early as December. It is remarkably unlike a lily in appearance. Instead of being a frail plant, it is a shrub, three or four feet high, with woody, branched stems, and what appear to be dark green, stiff leaves, each ending in a prickly point. As a matter of fact these are not leaves at all, but flattened twigs. The true leaves have been reduced to thin scales, which soon drop off and are difficult to find. It was this character of the plant that led butchers to break off branches of it, and use them as brooms with which to sweep their blocks, hence the name butcher's broom. The flowers are small and greenish-white, but these develop into large, round, scarlet berries.

Other members of the lily family found growing in woods and coppices are the lily-of-the-valley; the spiked Star of Bethlehem, which has long, narrow leaves, withering very early in the season, and greenish-white flowers, growing in a long raceme or cluster; and the ramson, or broad-leaved garlic, whose pretty white flowers grow in a flat umbel, and whose leaves can scarcely be distinguished from those of the lily-of-the-valley. When bruised the whole plant gives out an intolerable smell of garlic.

The lily-of-the-valley, unlike many other members of its family, has no bulb, but a long, creeping underground stem. The blossoms are in pretty little white bells, which hang with the openings below, so that the pollen is protected from the rain.

The yellow Star of Bethlehem, also a member of the lily family found growing in the woods, has a small bulb, and the yellow flowers grow in a cluster.

ROSES THAT CAN BE GATHERED IN WOOD AND COPPICE

Two roses are found growing in the woods and coppices. One of these is the trailing rose, a sister of the dog rose, and in some ways like that plant; but it is a much more trailing plant, and often spreads over many feet. It has slender branches and smooth leaflets which shine on the upper sides. The prickles are small and much hooked. The flowers, which are white and scentless, grow three or four together at the ends of the branches. The fruits are small and almost globular. The other rose of the woods, also a sister of the dog rose, is the downy-leaved rose. This also has a globular fruit which distinguishes it from the downy varieties of the dog rose. The fruit is generally covered with small, fine prickles, and the stems are more prickly than those of the dog rose, though the prickles are smaller.

Though these are the only roses generally found in woodlands, there are several other members of the rose family. We find, for instance, the wild strawberry, the ancestor of our garden strawberries. Then we have the herb benet, or common avens, another member of the rose family growing abundantly in woods and thickets. It is an erect, hairy plant, about two feet high, and its yellow flowers are over half an inch across.

THE MEMBER OF THE ORCHIS FAMILY WITH A HOLLOW LIKE A BIRD'S NEST

A very striking flower of the woodlands is the fetid iris, or gladdon, sometimes called the roast-beef plant. It is not so large as the yellow iris and has narrower leaves; also the flowers are smaller, and the whole plant is of a deeper green. The flowers are either of a dull leaden hue or a livid purple, this colour and the disagreeable smell having given rise to the name roast-beef plant.

Several orchids are found in the woodlands. There is the bird's-nest orchis, a pale brown plant about a foot high, with a root that is made up of many interlacing, succulent fibres. From the extremities of this root the young plants are produced. The flower gets its name from its form,

one end of a large lip being hollowed out into a nest-like cavity. The early purple orchis, called in some districts the cuckoo, is a much more attractive plant. It has broad, lance-shaped green leaves, often blotched with dull reddish-black, and a loose spike of showy flowers, pinkish-purple or flesh colour, and sometimes even white. The spotted orchis has rather narrower leaves of a similar kind, and the flowers, which grow in a dense oblong spike, are lilac or white, marked with dark lines and spots. The twayblade, another member of the orchid family, is a coarse, hairy plant from one to two feet high with a tapering stem, and about six inches from the ground a pair of broad, oval leaves. The yellowish-green flowers grow in a long spike.

THE DANGER LURKING IN THE STATELY AND BEAUTIFUL FOXGLOVE

A very stately and showy plant of the woodlands, except in limestone districts, is the foxglove, the name being a corruption of folk's glove, meaning a glove for the fairies. It is a member of the figwort family, and grows sometimes to a height of four or five feet. The leaves are large, wrinkled, and downy; but the chief feature of the plant is the tall spike of handsome, bell-shaped flowers, which droop as they expand, and are thus protected from the rain and from drippings from the trees overhead. These flowers are a deep rose colour, and inside are beautifully spotted. Sometimes the flowers are white. The way in which this flower is fertilised is shown in the coloured plate on page 2046. The flowers eventually give place to an egg-shaped capsule, and when the seeds ripen this opens, so that the seeds fall out as the stem rocks in the wind. Though very handsome, the plant is dangerous, for it is highly poisonous, and people have been made seriously ill by taking an infusion of the leaves. It is used medicinally, however.

MEMBERS OF THE BELLFLOWER FAMILY FOUND GROWING IN THE WOODS

Although the harebell is not found growing in the woodlands, several of its relations are. Among them are the nettle-leaved bellflower, or wild Canterbury bell, a very rough plant two or three feet high with an angular stem and leaves like those of the nettle, hence its name. The blue flowers are large and showy, and grow two or three together in short, leafy clusters. We also find in woods and coppices the giant bellflower, a larger plant with a furrowed stem, and very large bell-shaped flowers, deep blue or white, and hairy inside. Another woodland plant of this family is the spreading bellflower, which has a very rough stem and loose heads of wide, cup-shaped, purplish-blue flowers.

A very interesting flower of the woods is the little Linnaea borealis, a member of the honeysuckle family, *the only plant named after the great botanist Linnaeus*, who founded the modern method of grouping plants and animals. It is not found all over Britain, but only in the fir-woods of Scotland and at Hartburn in Northumberland. It is a slender evergreen plant, creeping and trailing along the ground for a foot or more, and the fragrant, delicate pink flowers, crimson inside, grow in pairs on erect stems.

The common honeysuckle, or woodbine, is also a flower of the woods; it is the first of all the plants to expand its leaves and almost the last to blossom. Its stems twine round those of other plants and its leaves are in pairs. The flower is specially adapted for pollination by moths with long tongues, like the hawk moths, and the way in which they work is shown in the coloured plate on page 2045.

VIOLETS OF THE WOODLANDS WITH SCENTLESS FLOWERS

Another member of the honeysuckle family found in moist woods is the guelder rose, or water elder, which grows to a shrub or small tree, and has its white flowers in flat-topped clusters.

Two of the violets are common in woods and copses, the dark and the light wood violets, but neither has fragrant flowers. The wood forget-me-not is a member of the borage family, a tall, erect plant, very hairy, without runners, and with clusters of bright blue flowers appearing from May to September. Another borage is the purple gromwell, which has a prostrate leafy stem, on account of which it is often called the creeping lithosperm. The bright blue-purple flowers are borne on erect stems, and the fruits that result are smooth and shining. The leaves are very hairy.

The primrose is, of course, abundant in woods as well as on banks, but we have already studied it as a flower of the hedgerow on page 4289. Other members of the primrose family are also found in the woods, such as the yellow pimpernel, or wood loosestrife, a graceful little plant very much like the scarlet pimpernel except that it is larger and more glossy and

has bright yellow flowers; the chickweed wintergreen, a tiny plant four or five inches high with white flowers; and the ivy-leaved sow-bread with nodding pink flowers that appear before the leaves. As the fruit ripens this plant has a curious habit; its flower-stalk curls spirally and buries the fruit in the earth. One other member of the primrose family found in woods, though only in eastern counties, must not be omitted, and that is the oxlip. It is almost identical with the cowslip, but the calyx, or part made up of green leaves under the petals, is less inflated.

THE HAWKWEEDS WITH THEIR NARROW LEAVES AND YELLOW FLOWERS

The buttercups are represented in the woods by the goldilocks, a plant with large yellow flowers like the meadow buttercup; and the wood anemone with drooping flowers that are usually white, but are sometimes tinged with pink and occasionally blue. These have no petals, but the sepals are enlarged to serve as petals.

There are several of the composite family in the woodlands, including the common hawkweed, a variable plant rather more than a foot high, with narrow, toothed leaves arranged in a loose rosette, often spotted with red, and heads of yellow flowers; the narrow-leaved hawkweed, a sister plant, tall and erect; the marsh hawk's-beard, a slender, unbranched plant about two feet high with yellow flowers; and the ivy-leaved lettuce, an erect plant with a few thin-toothed or lobed leaves clasping the stem, and heads of small yellow flowers.

Heath flowers are also represented in the woods. Among them are the round-leaved wintergreen, with pure white flowers arranged in a long cluster; and fir-rape, or pine bird's-nest, which has an unbranched juicy stem covered with scaly bracts or leaves and ending in a drooping cluster of brownish-yellow flowers that turn black. At a distance it has somewhat the appearance of the bird's-nest orchis and the broom-rape.

MEMBERS OF THE PEA FAMILY THAT GROW IN THE WOODS

Among the leguminous plants growing in the wood, members of the pea family, we find the narrow-leaved everlasting pea, a straggling, climbing plant with clusters of large, pale, reddish-purple flowers; the bitter vetch, with leaves which bear from fourteen to twenty leaflets, and purplish-white flowers in groups of from six to twenty; the bush vetch, a somewhat similar plant with clusters of from four to six bluish-purple flowers; and the tuberous bitter vetch, a pretty little spring plant, easily distinguished from the other vetches by the absence of tendrils.

The common St. John's wort, with its bright yellow flowers in a handsome cluster, is a plant of the woods and thickets, as is also its relation the tutsan, a striking woody plant with large, oval leaves that give off a strong odour of resin.

The pink family is represented by the red campion, a sister of the evening campion, but with red flowers instead of white. Of the crane's-bill family we find in the woodlands the elegant little touch-me-not with its large yellow flowers spotted with orange; the wood crane's-bill, a tall, hairy plant with purplish-blue or rose-coloured flowers; and the wood sorrel or alleluia, another elegant plant with delicate, hairy leaves that fold together at night for protection against cold.

The labiate family, which includes 2500 species, is well represented in the woods, among its members being the common bugle, a plant with a solitary stem of blue flowers; the wood betony, a very pretty woodland plant with a spike of crimson or rose-coloured flowers; and the yellow dead-nettle, or archangel, a sister of the white dead-nettle.

DAINTY FLOWERS OF MANY FAMILIES THAT FLOURISH IN THE WOODS

For a gentian we have in the woods the common centaury, a pretty little plant with clusters of rose-pink blossoms; and for a saxifrage the wild black-currant. The orpine, or livelong, with its clusters of crimson flowers, is a member of the stonecrop family; and the charming woodruff with its delicate sprays of white, funnel-shaped flowers is one of the bed-straw family.

The willowherb family has also its dwellers in the woodlands, among them being the rose-bay, or French willow, a handsome plant with a spike of rose-coloured flowers, and the enchanter's nightshade, a slender plant with clusters of small white flowers.

One other flower of the wood must not be forgotten—the lesser periwinkle, a trailing plant with short, erect, leafy shoots which bear dainty violet flowers. The plant is very common, especially in the West of England.

In the shadow of Vesuvius

ITALY AND ITS STORY

WE have seen in other pages the rise and fall of the Roman Empire. In compactness and completeness that Empire has not had a rival. Though the British Empire is greater, more varied, and more populous, it does not dwarf the rest of the world as the Roman Empire dwarfed it. Rome, in the days of her greatest glory, was mistress of the known civilised world, magnificent in her grandeur and irresistible in her might. She gathered the world around her into one vast unity over which her law reigned. Unity was her proud watchword, and Rome was the heart of that noble unity, with Italy spread around her as her chief support.

Yet, when the power of Rome was shattered, Italy, the most naturally compact of all countries, became the most divided, weakened, and paralysed. More than fifteen hundred years passed before Italy again became united and free.

The Roman Empire had been divided into eastern and western parts, with the eastern part leaning on Constantinople as its most powerful section, before the wild hordes of northern Goths poured down on it through the Alpine passes. It was the need for the defence of Italy against these rude and fierce invaders that withdrew the disciplined legions homeward from such outlying parts of the Empire as Britain. That recall was made in vain. Rome fell, and with her fall Italy was shattered into fragments.

The first invaders who came to stay, and who set their mark permanently on northern Italy, were the Lombards, a German tribe which, in its early onrush, swept southward to the limits of the peninsula, but finally settled in the fertile plain of the River Po, with Pavia as their capital.

Strange, indeed, are the changes of history. These fair-haired Lombards, who spread terror through Italy when they descended into its northern plain, remained to be, centuries afterwards, a prosperous commercial people, famous for their management of money in business throughout Europe. To this day, when London is the city where the finances of the world are most fully controlled, the centre for the exchange of the wealth of nations is called Lombard Street.

But the Lombards had to live through many generations of warfare before they understood the power of money. By the time they had gained a firm footing in Italy, the failing military power of Rome

had been replaced by the spiritual power of the Christian faith. Races unconquered by the legions of the Roman Empire were becoming Christianised by the western Church, which acknowledged the Pope of Rome as its head, so tribes from far outside Italy were ready to respond to the call of their religious chief to defend the city where he lived and had begun to rule. Men hoped they might have kinder treatment under the rule of a Christian bishop than under the rude kings of warlike, marauding tribes, and so it came about that around Rome the pope became trusted with earthly power as well as the spiritual power of religion, and popes took an active part in the wars which for centuries surged through Italy.

In this way, at a later period, Charlemagne, the great King of the Franks, a German tribe who had become strong in what is now southern Germany and France, crossed over into Italy, defeated the Lombards, and was crowned by the pope as emperor of a new State called, because of its association with Christianity, the Holy Roman Empire.

THE NORMANS WHO WENT TO ITALY WHEN THE CONQUEROR CAME TO ENGLAND

These emperors of the Holy Roman Empire, however, did not make Italy the centre of their rule, and bring to it peace and unity. They were not Italians. They liked the high-sounding name of Emperor, and to be associated with the ancient fame of Rome, but they were really foreigners from beyond the Alps. Their chief interest was in their own countries. Besides, other races invaded Italy from time to time and small kingdoms and dukedoms were established in different parts of the peninsula. Thus Normans, about the time of the Norman Conquest of England, sailed in bands to southern Italy and seized Sicily and part of the southern mainland and reigned there.

The popes, too, as they increased their territory, did not always agree with the emperors, who were comparative strangers, and so the country was broken up into separate States, waging frequent wars and forming alliances with or against each other; and the rival claims of ambitious rulers at last drove out of all minds the idea of an Italy united and prosperous through peace.

Another remarkable feature was the rise of energetic and prosperous cities, which became wealthy and famous, and so strong that they were able to be independent of kings and ruling dukes. Each city developed a character of its own. Business rivalry led to jealousies, and war between city and city.

One lamentable effect of this division and rivalry was that when foreign invasions took place, there was no combined attempt to repel the intruders. The Saracens, Arab wanderers from the African shores, came in strong force, and at times held the mastery over the Mediterranean Sea. Hungarian invasions from the north were repelled with difficulty, and Turkey, obeying the Mohammedan impulse towards war, successfully invaded Sicily. France, Austria, and Spain laid claim in turn to parts of the country, leading to more wars and greater disunion. Italy as Italy had then no existence.

THE IMMORTAL DANTE AS THE FOUNDER OF THE UNITY OF HIS COUNTRY

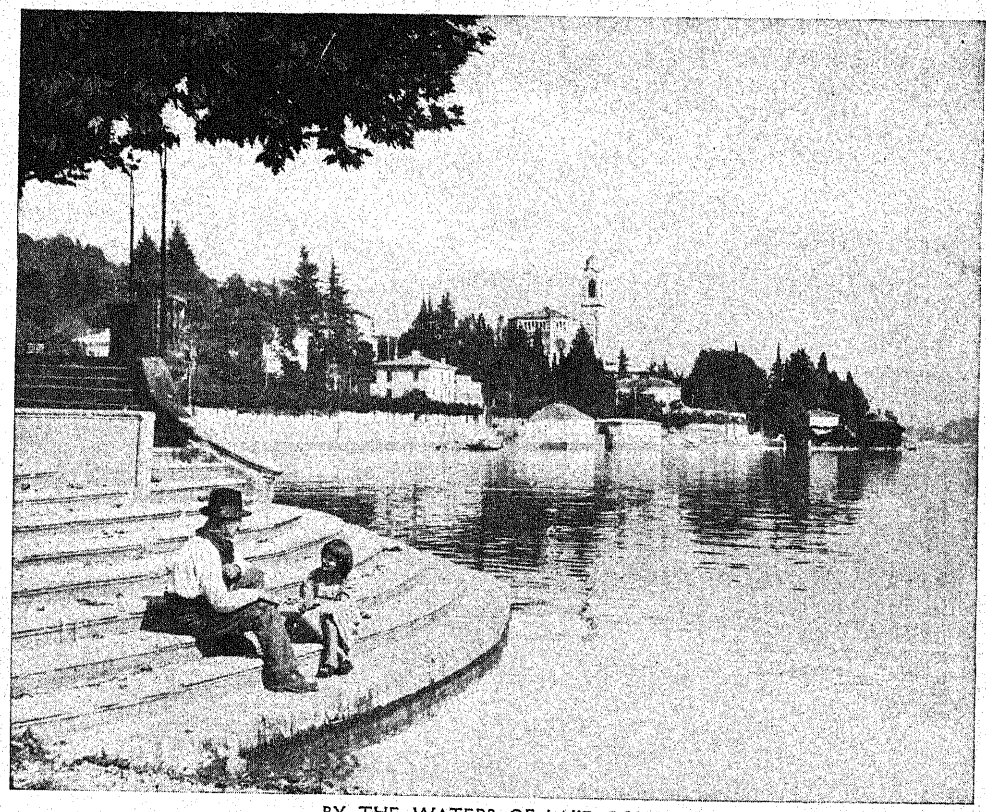
Even the language of different parts developed differently, and the Lombard of the north, the Tuscan of central Italy, the Ligurian of the west around Genoa, the Neapolitan and the Sicilian could with difficulty understand each other's dialect. It is not easy to see how the unity lost when the ancient Roman Empire collapsed would ever have been regained had it not been that one of the world's greatest poets, Dante, arose and chose the language of Tuscany for poems of such transcendent beauty and attractiveness that he commanded the interest of all men, and fixed for ever a literary standard for every part of the disunited country. The ordinary speech of Italy to this day is widely different from the language in which books are written. Dante was the real founder of Italian unity. Not only did he make it possible by establishing a common language of which all were proud, but he was a patriot whose writings were a call to unity. For many years he lived in exile, as we read on page 4582.

THE EVERLASTING GLORIES OF A NATION'S TROUBLED YEARS

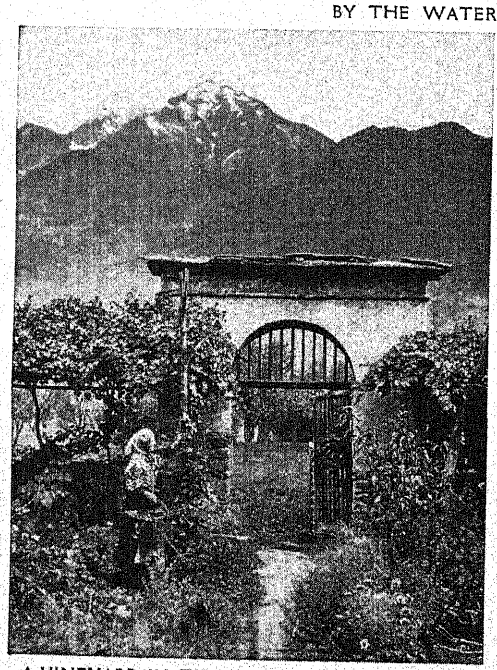
Among the strangest of the features of Italian history is the fact that the period of the greatest disunion produced the glories which give Italy a position in the modern world not unworthy of the successor to ancient Rome.

The government of the peninsula was at its lowest ebb, with tyranny rampant everywhere, and war scarcely ever absent, in the days when all the really great works in Italian literature were produced. It was

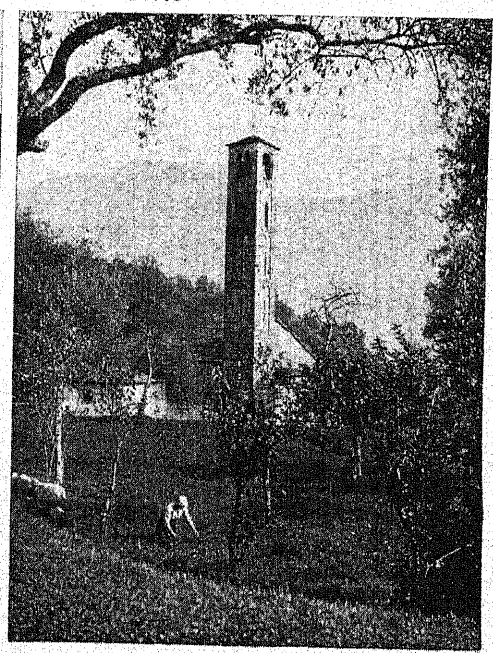
QUIET PLACES IN A LOVELY LAND



BY THE WATERS OF LAKE COMO



A VINEYARD IN THE SHADOW OF THE ALPS



A CONVENT ORCHARD NEAR LAKE COMO

These pictures are reproduced by courtesy of Donald McLeish

the same when she was painting the pictures and building the cathedrals and palaces that are now a delight to all the world. She was also leading the way to the rescue of the fast-fading literature of classical Greece, and the revival of a delight in the learning that preserves much of the world's finest thought.

There was even some advantage in those days in Italian local jealousies and incessant petty warfare. The expanding intelligence of the world came into sharp conflict with gross tyranny and rampant intolerance, and no man knew when, if he called his soul his own, he might not find it convenient to flee for his life to some adjacent place of refuge. Almost every great Italian in the Middle Ages and later was from time to time a fugitive and exile. Originality of thought might have been stamped out had there not been an abundance of places of safety.

So ever-present were jealousy, rivalry, and hostility between State and State, city and city, king and king, and duke and duke, that the rejected of one place would be certain to be the accepted of some neighbouring place. The persecuted had but to cross a State's frontier or a grandee's boundary, and he would be welcomed by the persecutor's enemy.

THE LITTLE STATES AND THEIR RIVALRY IN WAR AND IN ART

The spirit of conflict was by no means personal only, or a family feud. Whole communities were involved in keen rivalries. Genoa, the home of adventurous seamen, including the greatest of them all, Christopher Columbus, fought fiercely for maritime supremacy against wealthy Venice, when she sought to capture the carrying trade of the Eastern Mediterranean. Pisa and Leghorn were keen in competition, while they neglected the pirates who infested their shores.

Happily there were other forms of competition than war and trade. The towns of Italy vied with each other in the beauty of their cathedrals, their painting and sculpture, so that to this day no considerable town that has existed since the revival of art and learning can be neglected by the student of art.

While Rome was the centre towards which the finest artists were drawn, it was not a place where art originated. Florence was first among a number of competing cities, as the intellectual and artistic inspirer of the Italian people. It was the city of Dante and Giottò, of Michael Angelo and Leonardo da Vinci, and in it the most celebrated of Italian ruling families, the Medici, had their home, the wealthy patrons of art and learning for centuries.

With such a ferment of mind and refined taste giving the Italian peninsula a distinction in the world which ancient Rome had never attained—though it had other distinctions as important—how came it that Italy for so long remained disunited?

THE INFLUENCES AT WORK AGAINST THE UNITY OF THE ITALIAN STATES

Three influences warded off the unity which later seemed so natural, and which, indeed, is strongly suggested by the configuration of the country within its surrounding seas and mountain ranges. The strength of local feeling concentrated in proud cities like Florence, Venice, Genoa, and Milan tended to keep them independent. Racial variations in Piedmont and Lombardy in the north, Tuscany in central Italy, and Naples and Sicily in the south, were not readily reconciled; and the Papal States, acting as a wedge between north and south, made unity impossible.

There was natural reluctance to interfere with the temporal power of the pope in the regions around Rome, supported as it was by the religious faith of Roman Catholic lands outside Italy. And, as time went on, pressure from powerful military nations beyond the Alps made movements for national freedom desperate ventures. Austria, overrunning Venice and the lands behind, which gave it its timber for its foundations and its shipping, and passing southward through the Brenner Pass to the northern Italian plain, long gripped north Italy in a military stranglehold.

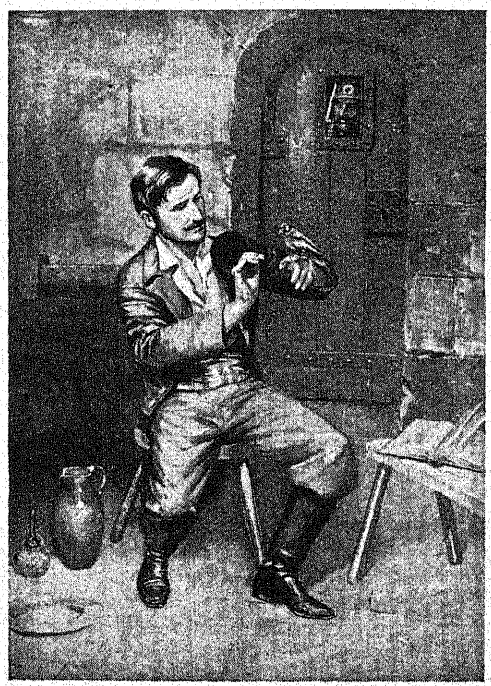
So much was this the case that when Napoleon, in resisting Austrian opposition to the French Revolution, descended through the Alps and routed the Austrians in the north, he was received as a deliverer. After establishing a republic beyond the Alps, he was eventually crowned in Milan Cathedral as King of Italy, and he received, until his downfall, loyal support from those who had groaned under Austrian tyranny.

HOW NAPOLEON BROUGHT THE PEOPLES OF ITALY INTO CLOSER TOUCH

Though Napoleon imposed his will on Italy in a manner utterly indefensible, there is no doubt that his use of his unchallenged power over the peninsula tended to smooth the way towards national unity. For instance, he brought southern Italy

THREE OF ITALY'S IMMORTALS

THE KING MEETS GARIBALDI—VICTOR EMMANUEL, ON THE WHITE HORSE, SHAKES HANDS WITH THE HERO OF UNITED ITALY WHO MADE THE ITALIAN THRONE SECURE



THE DREAMER AND THINKER OF UNITED ITALY

Mazzini, thrown into prison, had two great interests—the sight of the boundless sea and sky through his prison bars, and the taming of a little finch that flew into his cell.

THE EXILED DANTE SEEKS REST AND PEACE

Driven from his native city Dante in his wanderings knocked at the door of a monastery, and, asked from within what he sought, answered "Peace."

into closer touch with the rest of the country. No part of the peninsula had been quite so badly governed as Naples and Sicily. It had passed from Norman kings to German emperors, to French, Spanish, and Austrian royal houses. It had been neglected and oppressed, and left in a state of ignorance, superstition, and brigandage. It was Italian only in name.

THE THOUGHTS OF FREEDOM THAT ENTERED THE MINDS OF THE PEOPLE

Napoleon linked the south with the rest of Italy, and at last, when Napoleonism faded out it left behind in Naples an aspiration to be really united with the rest of Italy. Hope was specially strong in the vigorous north, where the Italian royal house of Savoy, ruling in Sardinia and the State of Piedmont around Turin, was gathering strength. There were insurrections in Austrian Lombardy, Venice, and Rome, but Austria tightened her hold on her Italian possessions, and France assumed the character of Protector of the Papal Power in Rome. All the free countries and free minds in Europe, however, were being won over to an interest in Italian freedom. What right had any country outside of the peninsula to deny to the Italian people the liberty they craved? England was especially sympathetic. The story of the freeing of Italy is one of the most thrilling that can be written. We read how the pope fled in disguise from Rome on the box of a carriage; how the citizens of Venice took shelter round St. Mark's against Austrian cannon; how Louis Napoleon helped and hindered, and took Savoy and Nice for his pay; how Garibaldi freed Naples and Sicily from the tyrant who bombarded Messina and Palermo, and caused his own people to be shot down in the streets. When Victor Emmanuel entered Rome in state on July 2, 1871, he received an enthusiastic welcome; but the pope shut himself up in his palace; and all popes ever since have refused to leave the Vatican.

GARIBALDI RETURNS FROM AMERICA TO SET HIS COUNTRY FREE

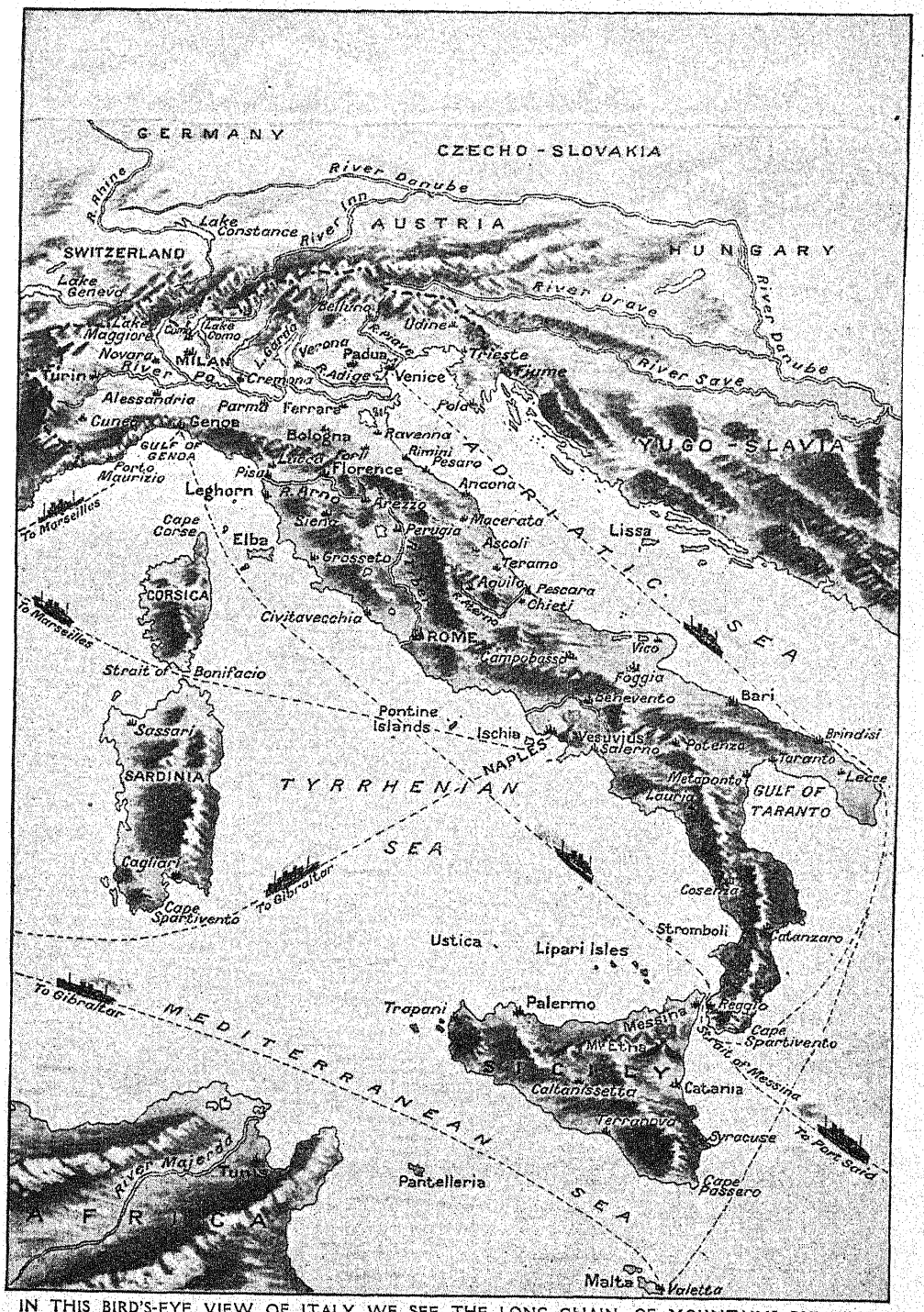
Five men brought about the change. These were Victor Emmanuel, King of Piedmont and Sardinia; his chief minister, Cavour; Mazzini, the famous political thinker and writer, who had a powerful effect on public opinion; and the great Garibaldi, a brave and daring adventurer, who had won fame as a soldier in South America, and then came to Europe to devote his life to securing the unity and freedom of his own country, Italy. The fifth was Napoleon the Third.

The Sardinian king and people had gained the goodwill of England and France by joining them as an ally in the Crimean War, and Napoleon thought he saw an opportunity of being Napoleonic by taking up the cause of Italy, and ejecting the Austrians from its northern provinces. For Piedmont alone this was an impossible task. But Napoleon agreed with Count Cavour that 200,000 French soldiers should assist in a campaign against the Austrians, if the Italian provinces of Nice and Savoy were ceded to France. The Austrians were defeated (in 1859) at the battles of Magenta and Solferino, and in consequence Lombardy was annexed to Piedmont. Tuscany also joined Victor Emmanuel's kingdom, while France received Nice, which was Garibaldi's birthplace, and Savoy, the home of the ruling House of Italy.

THE END OF THE STRUGGLE FOR THE UNITY OF THE ITALIAN RACE

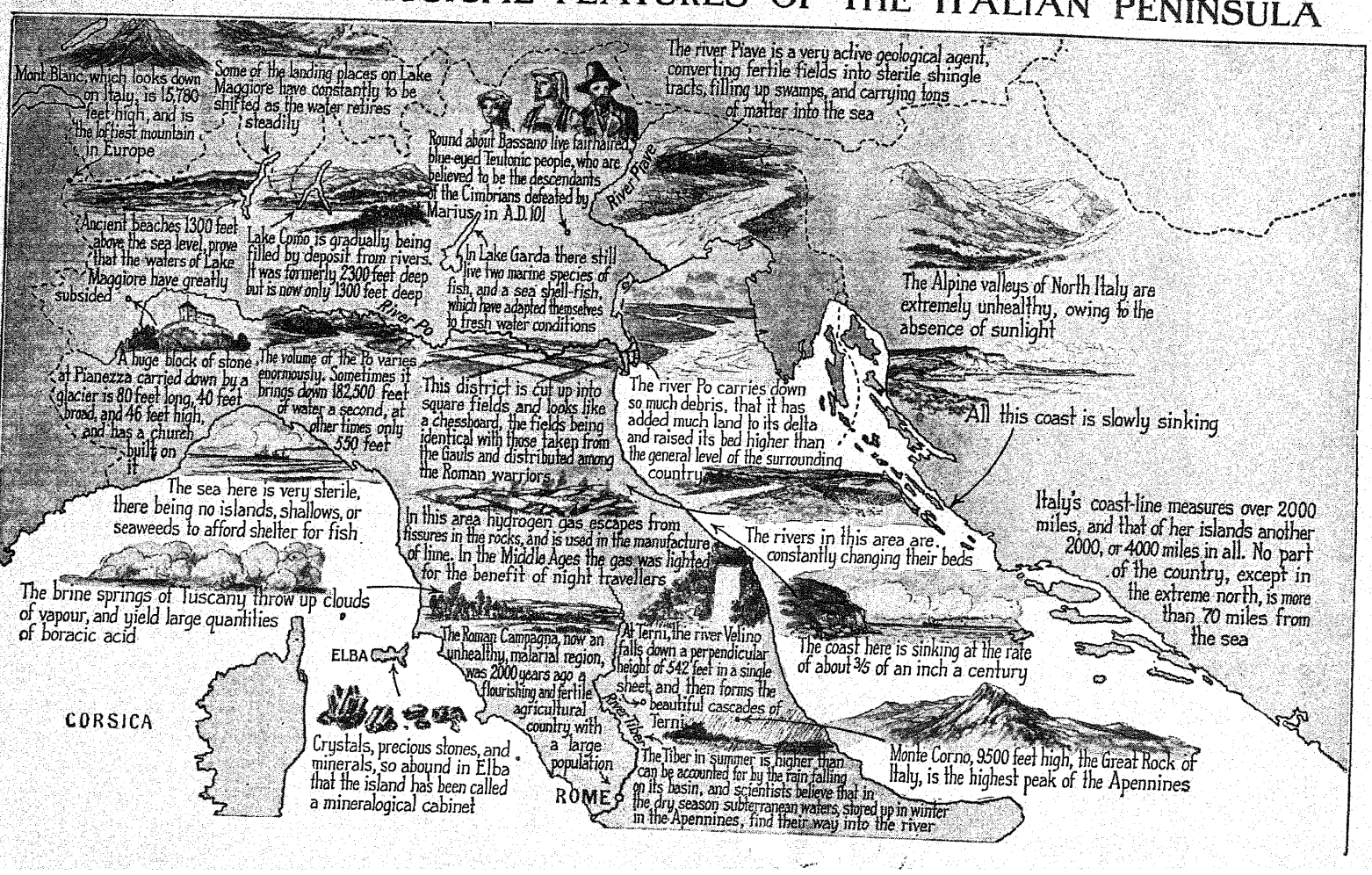
Garibaldi, who had fought bravely against the Austrians on the slopes of the eastern Alps, now proceeded to raise rebellions in various parts of unredeemed Italy. He invaded Sicily, and crossing to the mainland captured Naples, which he handed over to Victor Emmanuel. In this way all Italy except Rome and Venice became united with Victor Emmanuel as king. Venice was regained by Italy from Austria through an alliance with Prussia in 1866; and Rome was occupied when the French troops were withdrawn from the city in the course of the Franco-German War of 1870. During these changes, which nearly completed the unity of Italy, the capital cities had been—first Turin, when Piedmont was taking the lead; then Florence, after the gain of Tuscany; and finally Rome, which thus became once more the centre of government.

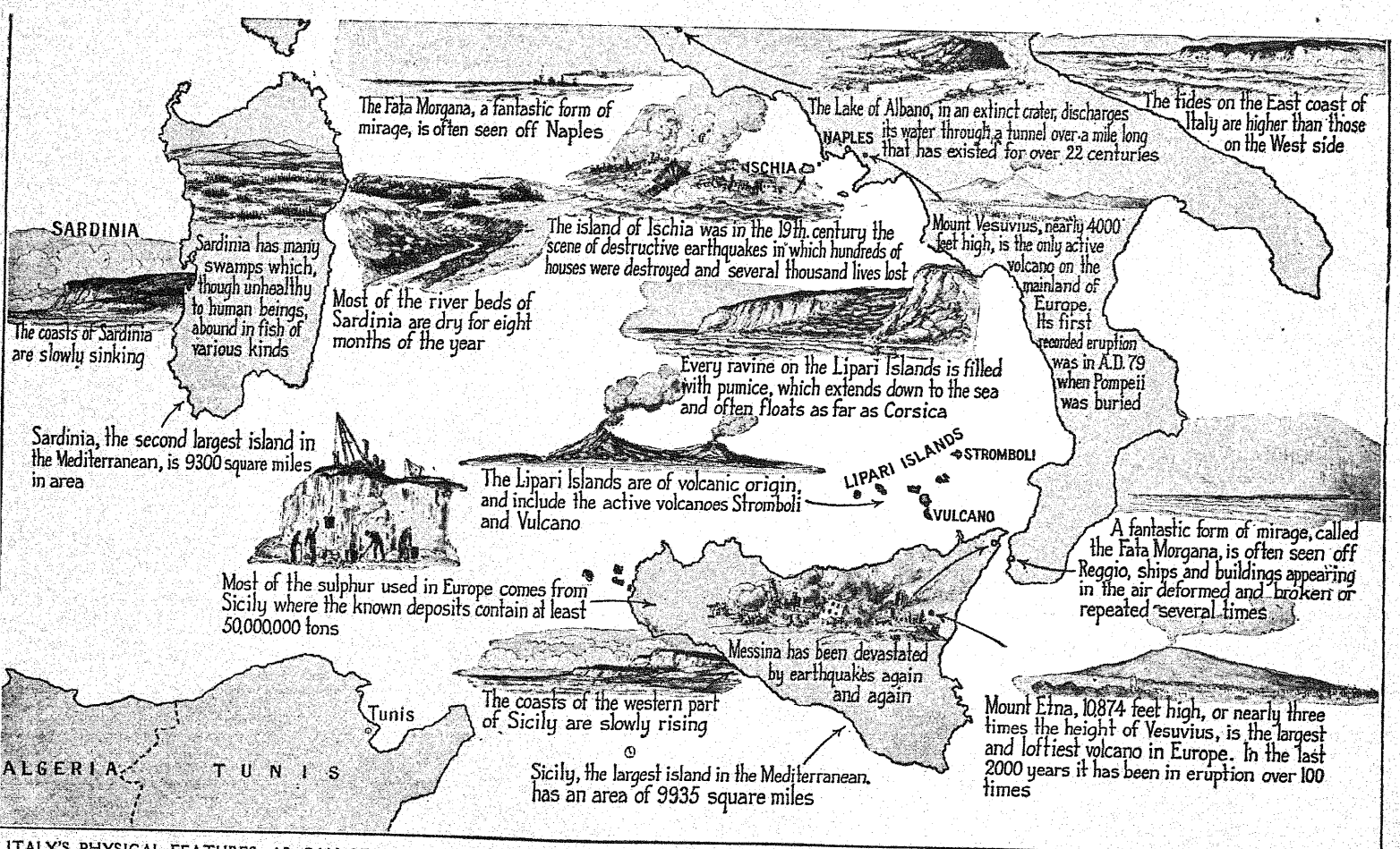
But all that race were not included. In the valleys which run northward into the Alps, such as the broad tract called the Trentino, which leads up to the Brenner highway into Tirol, were populations chiefly Italian, but still under Austrian rule. The defeat of Austria in the Great War led to these mountain people, in many valleys, right up to the watershed of the eastern Alps, being annexed by Italy, and so, from the Alpine ridges southward to Sicily, Italy became at last united and free.



IN THIS BIRD'S-EYE VIEW OF ITALY WE SEE THE LONG CHAIN OF MOUNTAINS RUNNING FROM NORTH TO SOUTH AND ALSO THE CHIEF CITIES AND RIVERS

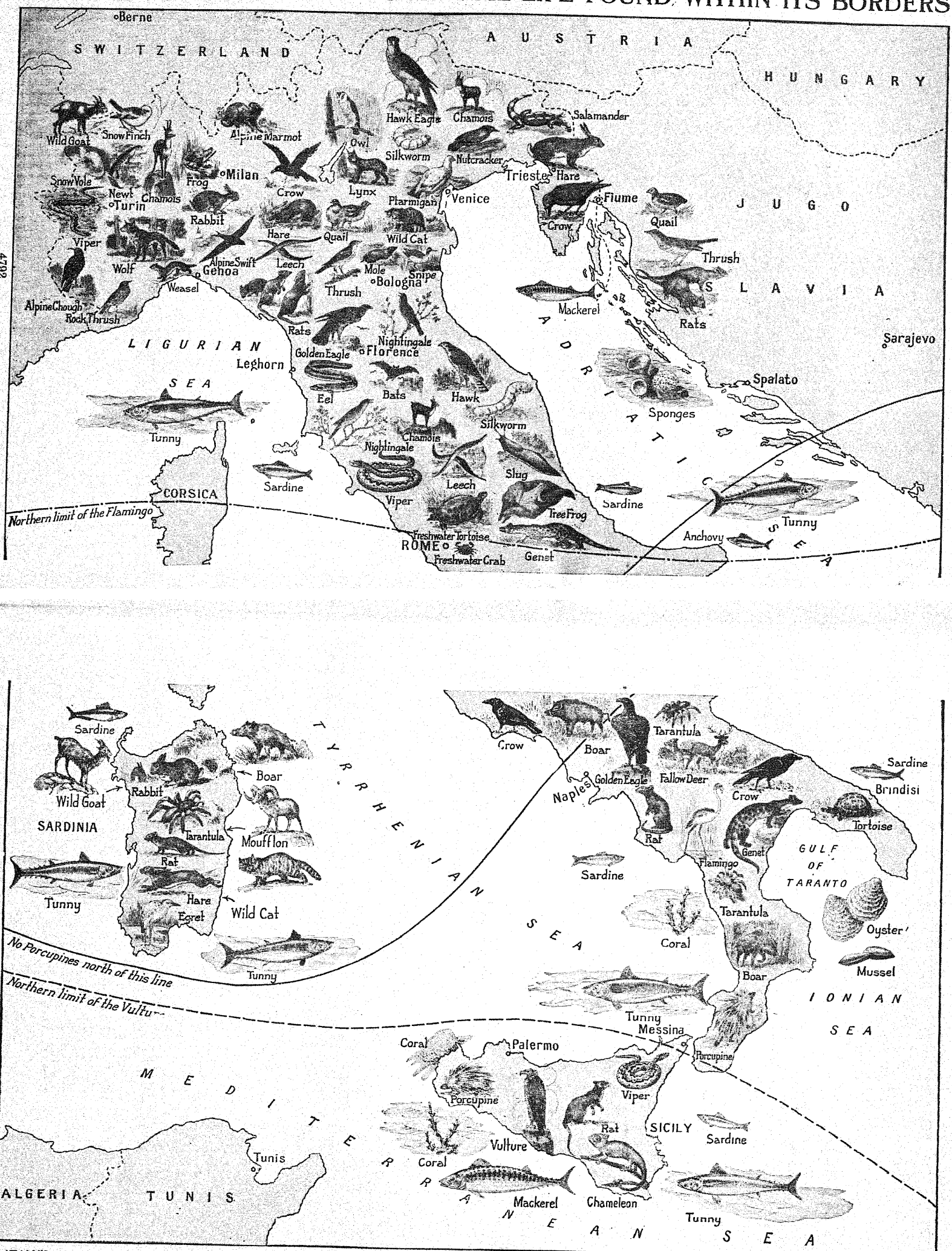
THE STRIKING PHYSICAL FEATURES OF THE ITALIAN PENINSULA





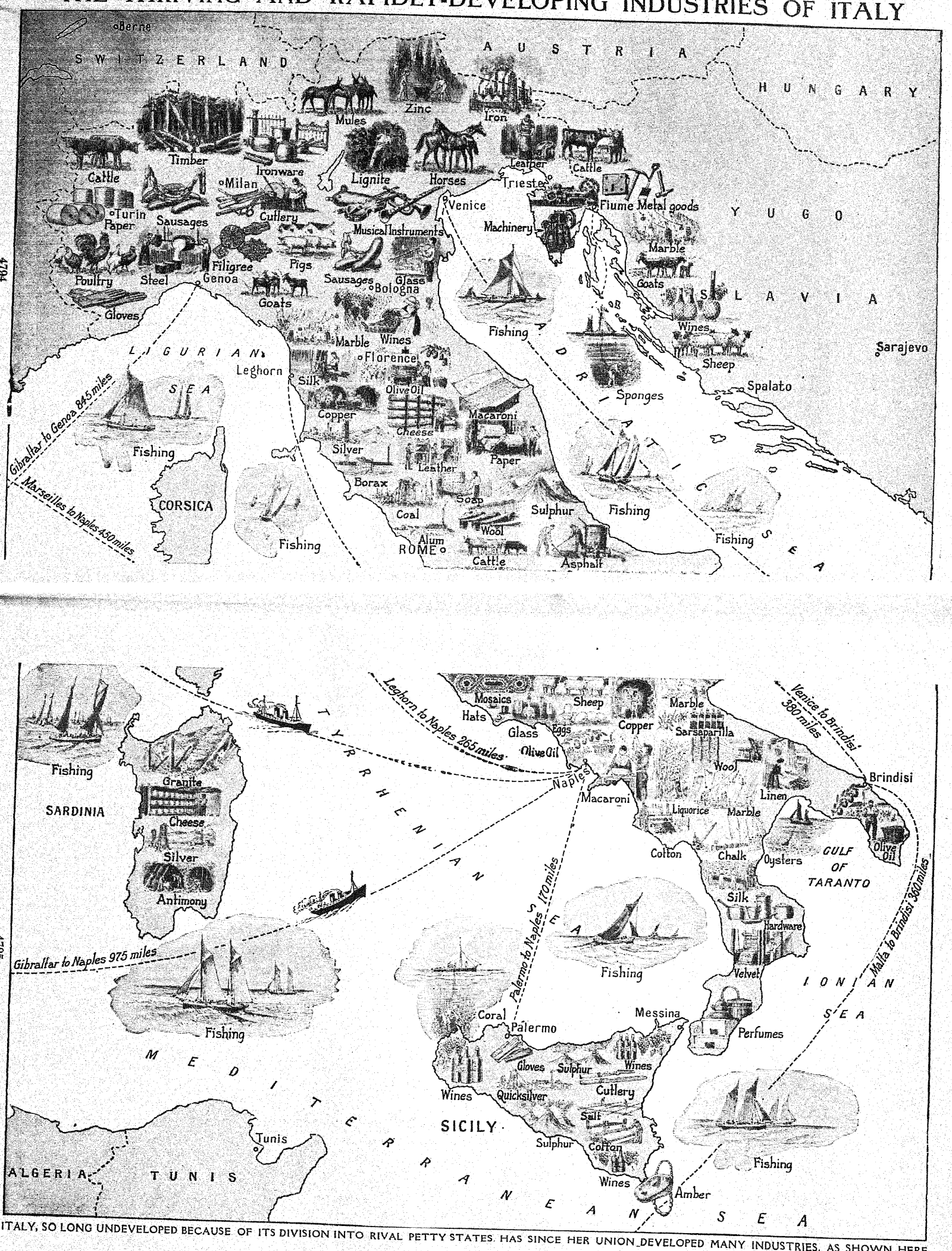
ITALY'S PHYSICAL FEATURES, AS CAN BE SEEN IN THIS MAP, ARE STRIKINGLY VARIED AND SHE HAS OFTEN KNOWN NATURE IN HER FIERCER MOODS

ITALY AND THE INTERESTING ANIMAL LIFE FOUND WITHIN ITS BORDERS



ITALY'S ANIMAL LIFE INCLUDES SUCH DANGEROUS OR PICTURESQUE CREATURES AS THE WOLF, LYNX, WILD BOAR, CHAMOIS, VULTURE, AND TARANTULA

THE THRIVING AND RAPIDLY-DEVELOPING INDUSTRIES OF ITALY



ITALY, SO LONG UNDEVELOPED BECAUSE OF ITS DIVISION INTO RIVAL PETTY STATES, HAS SINCE HER UNION DEVELOPED MANY INDUSTRIES, AS SHOWN HERE

ITALY AND ITS VARIED PLANT LIFE

AS THIS MAP SHOWS, ITALY PRODUCES A NUMBER OF SEMI-TROPICAL PLANTS AS WELL AS THOSE OF THE TEMPERATE REGIONS

THE DEFENCE OF LUCKNOW

In the long story of heroism there are few chapters to match in interest the defence of Lucknow. When a number of native soldiers in India rebelled against British rule, and began the struggle known as the Indian Mutiny, Lucknow was besieged by a great army of rebels. Within its walls Sir Henry Lawrence commanded a small force of British and loyal native soldiers, while as many more men, women, and children were there to be protected. For three terrible months the British held out against their swarming enemies, until Havelock and Outram came to their relief, on September 25, 1857. This episode in history was fittingly celebrated in this poem by Tennyson.

BANNER of England, not for a season,
O banner of Britain, hast thou
Floated in conquering battle or flapt to the battle-cry!
Never with mightier glory than when we had reared thee on high,
Flying at top of the roofs in the ghastly siege at Lucknow—
Shot through the staff or the halyard, but ever we raised thee anew,
And ever upon the topmost roof our banner of England blew.

FRAIL were the works that defended the hold that we held with our lives—
Women and children among us, God help them, our children and wives!
Hold it we might—and for fifteen days or for twenty at most.
"Never surrender, I charge you, but every man die at his post!"
Voice of the dead whom we loved, our Lawrence, the best of the brave:
Cold were his brows when we kissed him—we laid him that night in his grave.
"Every man die at his post!" and there hailed on our houses and halls
Death from their rifle-bullets, and death from their cannon-balls,
Death in our innermost chamber, and death at our slight barricade,
Death while we stood with the musket, and death while we stoopt to the spade,
Death to the dying and wounds to the wounded, for often there fell,
Striking the hospital wall, crashing through it, their shot and their shell.
Death—for their spies were among us, their marksmen were told of our best,
So that the brute bullet broke through the brain that could think for the rest;
Bullets would sing by our foreheads, and bullets would rain at our feet—
Fire from ten thousand at once of the rebels that girdled us round;
Death at the glimpse of a finger from over the breadth of a street,
Death from the heights of the mosque and the palace, and death in the ground!
Mine? Yes, a mine! Countermine! Down, down! and creep through the hole!
Keep the revolver in hand! You can hear him—the murderous mole.
Quiet, ah! quiet—wait till the point of the pickaxe be through!
Click with the pick, coming nearer and nearer again than before—
Now let it speak, and you fire, and the dark pioneer is no more;
And ever upon the topmost roof our banner of England blew.

AY, but the foe sprung his mine many times, and it chanced on a day,
Soon as the blast of that underground thunderclap echoed away,

Dark through the smoke and the sulphur, like so many fiends in their hell—
Cannon-shot, musket-shot, volley on volley, and yell upon yell—
Fiercely on all the defences our myriad enemy fell.
What have they done? Where is it? Out yonder. Guard the Redan!
Storm at the Water-gate! Storm at the Bailey-gate! Storm, and it ran
Surging and swaying all round us, as ocean on every side
Plunges and heaves at a bank that is daily devoured by the tide—
So many thousands that, if they be bold enough, who shall escape?
Kill or be killed, live or die, they shall know we are soldiers and men!
Ready! Take aim at their leaders—their masses are gapped with our grape—
Backward they reel like the wave, like the wave flinging forward again,
Flying and foiled at the last by the handful they could not subdue;
And ever upon the topmost roof our banner of England blew.

Handful of men as we were, we were English in heart and in limb,
Strong with the strength of the race to command, to obey, to endure,
Each of us fought as if hope for the garrison hung but on him;
Still—could we watch at all points?—we were every day fewer and fewer.
There was a whisper among us, but only a whisper that passed:
"Children and wives—if the tigers leap into the fold unawares—
Every man die at his post—and the foe may outlive us at last—
Better to fall by the hands that they love than to fall into theirs!"
Roar upon roar in a moment two mines by the enemy sprung
Clove into perilous chasms our walls and our poor palisades.
Rifleman, true is your heart, but be sure that your hand be as true!
Sharp is the fire of assault, better aimed are your flank fusillades—
Twice do we hurl them to earth from the ladders to which they had clung,
Twice from the ditch where they shelter we drive them with hand-grenades;
And ever upon the topmost roof our banner of England blew.

Then on another wild morning another wild earthquake out-tore
Clean from our lines of defence ten or twelve good paces or more.
Rifleman, high on the roof, hidden there from the light of the sun—
One has leapt up on the breach, crying out: "Follow me! Follow me!"—
Mark him—he falls! Then another, and *him* too, and down goes he.
Had they been bold enough then, who can tell but the traitors had won?
Boardings, and rafters, and doors—an embrasure! Make way for the gun!
Now double-charge it with grape! It is charged and we fire, and they run.
Praise to our Indian brothers, and let the dark face have his due!
Thanks to the kindly dark faces who fought with us, faithful and few,
Fought with the bravest among us, and drove them, and smote them, and slew,
That ever upon the topmost roof our banner in India blew.

Men will forget what we suffer and not what we do. We can fight;
But to be soldier all day and be sentinel all through the night—
Ever the mine and assault, our sallies, their lying alarms;
Bugles and drums in the darkness, and shoutings and soundings to arms,
Ever the labour of fifty that had to be done by five,
Ever the marvel among us that one should be left alive,
Ever the day with its traitorous death from the loopholes around,
Ever the night with its coffinless corpse to be laid in the ground,
Heat like the mouth of a hell, or a deluge of cataract skies,
Stench of old offal decaying, and infinite torment of flies,
Thoughts of the breezes of May blowing over an English field,
Cholera, scurvy, and fever, the wound that *would* not be healed,
Lopping away of the limb by the pitiful-pitiless knife—
Torture and trouble in vain—for it never could save us a life,
Valour of delicate women who tended the hospital bed,
Horror of women in travail among the dying and dead,
Grief for our perishing children, and never a moment for grief,
Toil and ineffable weariness, faltering hopes of relief,

Havelock baffled, or beaten, or butchered,
for all that we knew—
Then day and night, day and night, coming
down on the still-shattered walls
Millions of musket-bullets and thousands
of cannon-balls—
But ever upon the topmost roof our banner
of England blew.

Hark! Cannonade, fusillade! Is it true what
was told by the scout,
Outram and Havelock breaking their way
through the fell mutineers?
Surely the pibroch of Europe is ringing
again in our ears!
All on a sudden the garrison utter a
jubilant shout;
Havelock's glorious Highlanders answer
with conquering cheers,
Sick from the hospital echo them, women
and children come out,
Blessing the wholesome white faces of
Havelock's good fusiliers,
Kissing the war-hardened hand of the
Highlander wet with their tears!
Dance to the pibroch! Saved! We are
saved! Is it you? Is it you?
Saved by the valour of Havelock, saved by
the blessing of Heaven!
"Hold it for fifteen days!" We have
held it for eighty-seven!
And ever aloft on the palace roof the old
banner of England blew.

MARCH

What we mean by natural poetry is illustrated in these verses by Wordsworth when we compare their direct and simple pictures of natural objects with the stately but artificial grandeur of Milton's lines On May Morning.

THE cock is crowing,
The stream is flowing,
The small birds twitter,
The lake doth glitter,
The green field sleeps in the sun;
The oldest and youngest
Are at work with the strongest;
The cattle are grazing,
Their heads never raising;
There are forty feeding like one!

Like an army defeated
The snow hath retreated,
And now doth fare ill
On the top of the bare hill;
The ploughboy is whooping anon, anon:
There's joy in the mountains;
There's life in the fountains;
Small clouds are sailing,
Blue sky prevailing;
The rain is over and gone!

BIRDS

Richard Henry Stoddard, the famous American poet, in these verses gives us a pretty fancy. It is a happy thought to liken the fleeting visions of the poet's brain to the birds that flit past the open cage: yet the poet, even in the following lines, has "caged" very daintily one of these fleeting fancies.

BIRDS are singing round my window
Tunes the sweetest ever heard;
But I never catch a bird,
And I hang my cage there daily.

So with thoughts my brain is peopled,
And they sing there all day long;
But they will not fold their pinions
In the little cage of Song!

TO NIGHT

To Shelley appearances on the Earth which ordinary people accept as ordinary because they are often seen were poetical visions that took a personal shape. As an instance, here is his invocation to Night. Night and Day, Death and Sleep, are to him lovely creatures of fancy that play their drama before man's spirit, introduced in beautiful forms and melodious words to heighten the poet's preference for Night.

SWIFTLY walk o'er the western wave,
Spirit of Night!
Out of the misty eastern cave
Where, all the long and lone daylight,
Thou wovest dreams of joy and fear,
Which make thee terrible and dear—
Swift be thy flight!

Wrap thy form in a mantle gray,
Star-inwrought!
Blind with thine hair the eyes of Day;
Kiss her until she be wearied out;
Then wander o'er city, and sea, and land,
Touching all with thine opiate wand—
Come, long-sought!

When I arose and saw the dawn,
I sighed for thee;
When light rode high, and the dew was gone,
And noon lay heavy on flower and tree,
And the weary Day turned to his rest,
Lingering like an unloved guest,
I sighed for thee.

Thy brother Death came, and cried:
Wouldst thou me?
Thy sweet child Sleep, the filmy-eyed,
Murmured like a noontide bee:
Shall I nestle near thy side?
Wouldst thou me? And I replied:
No, not thee!

Death will come when thou art dead,
Soon, too soon—
Sleep will come when thou art fled,
Of neither would I ask the boon
I ask of thee, belovèd Night—
Swift be thine approaching flight,
Come soon, soon!

ARMIES IN THE FIRE

Looking into the fire at night when all is still and only the burning coals sputter and crackle what strange pictures we seem to see! Did you ever see an army marching in the fire? That is what Robert Louis Stevenson once fancied he saw, and in this poem he paints his fancy over again in words. By permission of Messrs. Longmans, Green & Co. we take this poem from A Child's Garden of Verses.

THE lamps now glitter down the street;
Faintly sound the falling feet;
And the blue even slowly falls
About the garden trees and walls.

Now in the falling of the gloom
The red fire paints the empty room:
And warmly on the roof it looks,
And flickers on the backs of books.

Armies march by tower and spire
Of cities blazing in the fire—
Till, as I gaze with staring eyes,
The armies fade, the lustre dies.

Then once again the glow returns;
Again the phantom city burns;
And down the red-hot valley, lo!
The phantom armies marching go.

Blinking embers, tell me true,
Where are those armies marching to,
And what the burning city is
That crumbles in your furnaces.

IN SCHOOLDAYS

The boy who was taken down in his class in spelling by the little maiden who loved him, but was grieved that she had passed above him, was John Greenleaf Whittier, the poet who wrote this account of it. The kind heart of that nameless schoolgirl has made her known, through this poem, to people in every part of the world long after both she and the boy she loved had died. Her loving unselfishness, once recorded, becomes a bright example which time cannot dim.

STILL sits the school-house by the road,
A ragged beggar sunning;
Around it still the sumachs grow
And the blackberry vines are running.

Within, the master's desk is seen,
Deep scarred by raps official;
The warping floor, the battered seats,
The jack-knife's carved initial;

The charcoal frescoes on its wall;
Its door's worn sill betraying
The feet that, creeping slow to school,
Went storming out to playing!

Long years ago a winter sun
Shone over it at setting;
Lit up its western window-panes
And low eaves' icy fretting.

It touched the tangled golden curls
And brown eyes full of grieving
Of one who still her steps delayed
When all the school were leaving.

For near her stood the little boy
Her childish favour singled;
His cap pulled low upon a face
Where pride and shame were mingled.

Pushing with restless feet the snow
To right and left, he lingered,
As restlessly her tiny hands
The blue-checked apron fingered.

He saw her lift her eyes; he felt
The soft hand's light caressing,
And heard the tremble of her voice,
As if a fault confessing.

"I'm sorry that I spelt the word:
I hate to go above you,
Because"—the brown eyes lower fell—
"Because, you see, I love you!"

Still memory to a grey-haired man
That sweet child-face is showing.
Dear girl! the grasses on her grave
Have forty years been growing!

He lives to learn, in life's hard school,
How few who pass above him
Lament their triumph and his loss,
Like her—because they love him.

TODAY

Writers who group poems of the same kind together and give each group a distinguishing name speak of verses that offer us good advice as didactic. This is a useful didactic poem. The key to it comes in the last line. Each day we should feel that the world is better because we have lived.

LET me today do something that shall take
A little sadness from the world's vast store,
And may I be so favoured as to make
Of joy's too scanty sum a little more.

Let me not hurt by any selfish deed,
Or thoughtless word, the heart of foe or friend,
Nor would I pass, unseeing, worthy need,
Or sin by silence where I should defend.

However meagre be my worldly wealth,
Let me give something that shall aid my kind—
A word of courage, or a thought of health,
Dropped as I pass for troubled hearts to find.

Let me tonight look back across the span
'Twixt dawn and dark, and to my conscience say:
"Because of some good act to beast or man
The world is better that I lived today."

PEACE

Henry Vaughan was the name of a doctor who lived from 1622 to 1695 and wrote many poems of a religious character. This poem of abiding faith in God is taken from his works. Vaughan also published meditations and devotions in prose

My soul, there is a country
  Afar beyond the stars,
Where stands a winged sentry,
  All skilful in the wars.
There, above noise and danger,
  Sweet peace sits crowned with smiles,
And One born in a manger
  Commands the beauteous files.
He is thy gracious Friend,
  And (O my soul awake!)
Did in pure love descend
  To die here for thy sake.
If thou canst get but thither,
  There grows the flower of peace—
The rose that cannot wither—
  Thy fortress, and thy ease.
Leave, then, thy foolish ranges,
  For none can thee secure
But One who never changes—
  Thy God, thy Life, thy Cure.

THE SAILOR'S WIFE

This poem, by Dr. Charles Mackay, picturing a sailor's wife singing to her baby in the happiness of having received from her husband a letter that says he is coming home, is tender and true, and its sentiment is admirably restrained.

I've a letter from thy sire,
  Baby mine, Baby mine!
I can read and never tire,
  Baby mine!
He is sailing o'er the sea,
He is coming back to thee,
He is coming home to me,
  Baby mine!

He's been parted from us long,
  Baby mine, Baby mine!
But if hearts be true and strong,
  Baby mine!
They shall brave misfortune's blast,
And be overpaid at last
For all pains and sorrow passed,
  Baby mine!

Oh, I long to see his face,
  Baby mine, Baby mine!
In his old accustomed place,
  Baby mine!
Like the rose of May in bloom,
Like a star amid the gloom,
Like the sunshine in the room,
  Baby mine!

Thou wilt see him and rejoice,
  Baby mine, Baby mine!
Thou wilt know him by his voice,
  Baby mine!
By his love-looks that endear,
By his laughter ringing clear,
By his eyes that know not fear,
  Baby mine!

I'm so glad—I cannot sleep,
  Baby mine, Baby mine!
I'm so happy—I could weep,
  Baby mine!
He is sailing o'er the sea,
He is coming home to me,
He is coming back to thee,
  Baby mine!

EPILOGUE

An epilogue is a short, final address spoken at the end of a play. This epilogue was the last word of the profound poet Robert Browning, ending the last poem of his last book. He asks how the world will think of him when he is dead, and in the two closing verses he tells how he would like to be thought of—as one who never lost faith in the strife for right, and who believed that, after death he would live and strive again. No poet has ever ended on a nobler note.

At the midnight, in the silence of the sleep-time;
  When you set your fancies free,
Will they pass to where—by death, fools think, imprisoned—
Low he lies who once so loved you, whom you loved so,
    —Pity me?

Oh, to love so, be so loved, yet so mistaken!
  What had I on earth to do
With the slothful, with the mawkish, the unmanly?
Like the aimless, helpless, hopeless, did I drivel,
    —Being—who?

One who never turned his back, but marched breast forward,
  Never doubted clouds would break,
Never dreamed, though right were worsted, wrong would triumph,
Held we fall to rise, are baffled to fight better,
    Sleep to wake.

No; at noonday in the bustle of man's work-time
  Greet the unseen with a cheer!
Bid him forward, breast and back as either should be,
"Strive and thrive!" cry "Speed—fight on, fare ever,
    There as here!"

AND WILT THOU LEAVE ME THUS?

This charming song by Sir Thomas Wyatt is one of the earliest of its kind in English literature. Wyatt's poems, published when Shakespeare was a child, set the fashion in melodious verse. It was his son of the same name who lost his life for complicity in the rebellion in favour of Lady Jane Grey. Grame means distress of mind

AND wilt thou leave me thus?
Say nay, say nay, for shame!
To save thee from the blame
Of all my grief and grame.
And wilt thou leave me thus?
Say nay! Say nay!

And wilt thou leave me thus,
That hath loved thee so long,
In wealth and woe among?
And is thy heart so strong
As for to leave me thus?
Say nay! Say nay!

And wilt thou leave me thus,
That hath given thee my heart,
Never for to depart,
Neither for pain nor smart?
And wilt thou leave me thus?
Say nay! Say nay!

And wilt thou leave me thus,
And have no more pity
Of him that loveth thee?
Alas! thy cruelty!
And wilt thou leave me thus?
Say nay! Say nay!

THE BLIND ARCHER

Sir Arthur Conan Doyle has given us many a manly strain in verse, but in this poem we see his lightness of fancy and touch. And it is true that love surprises men and women of all ages and types, and none would wish it away.

LITTLE boy Love drew his bow at a chance,
Shooting down at the ballroom floor;
He hit an old chaperone watching the dance,
And oh! but he wounded her sore.
"Hey, Love, you couldn't mean that!
Hi, Love, what would you be at?"
No word would he say,
But he flew on his way,
For the little boy's busy, and how could he stay?

Little boy Love drew a shaft just for sport
At the soberest club in Pall Mall;
He winged an old veteran drinking his port,
And down that old veteran fell.
"Hey, Love, you mustn't do that!
Hi, Love, what could you be at?
This cannot be right!
It's ludicrous, quite!"
But it's no use to argue, for Love's out of sight.

A sad-faced young clerk in a cell all apart
Was planning a celibate vow;
But the boy's random arrow has sunk in his heart,
And the cell is an empty one now.
"Hey, Love, you mustn't do that!
Hi, Love, what would you be at?
He is not for you,
He has duties to do."
"But I am his duty," quoth Love as he flew.

The king sought a bride, and the nation had hoped
For a queen without rival or peer.
But the little boy shot, and the king has eloped
With Miss No-one on Nothing a year.
"Hey, Love, you couldn't mean that!
Hi, Love, what would you be at?
What an impudent thing
To make game of a king!"
"But I'm a king also," cried Love on the wing.

Little boy Love grew pettish one day;
"If you keep on complaining," he swore,
"I'll pack both my bow and my quiver away,
And so I shall plague you no more."
"Hey, Love, you mustn't do that!
Hi, Love what could you be at?
You may ruin our ease,
You may do what you please,
But we can't do without you, you dear little tease!"

THE PEOPLE MARCHING ON

This is an extract from William Morris's March of the Workers, a poem which was written at the time when the right to vote was conceded to the labouring classes.

WHAT is this, the sound and rumour?
What is this that all men hear,
Like the wind in hollow valleys
When the storm is drawing near?
'Tis the People marching on.

These are they who build our houses,
Weave our garments, win our wheat,
Smooth the rugged, till the barren,
Turn the bitter into sweet—
All for us, our ease and pleasure.
What reward for them is mete?
Many a hundred years passed over
Have they laboured, deaf and blind,
Never tidings reached their sorrow,
Never hope their toil might find.
Now at length they know their power,
And their cry comes down the wind.
'Tis the People marching on.

THE DAY IS DONE

Few of the shorter poems written by Longfellow are more deservedly popular than the following, which has hardly a verse that does not contain some rare beauty of poetic thought and expression. The longing for quiet and peace at the end of a strenuous day has never been better conveyed in poetic form, and the pure pleasures of a good man's domestic life are here celebrated in the worthiest verse. The last stanza of the poem is a favourite quotation.

THE day is done, and the darkness
Falls from the wings of Night,
As a feather is wafted downward
From an eagle in his flight.

I see the lights of the village
Gleam through the rain and the mist,
And a feeling of sadness comes o'er me
That my soul cannot resist:

A feeling of sadness and longing
That is not akin to pain,
And resembles sorrow only
As the mist resembles the rain.

Come, read to me some poem,
Some simple and heart-felt lay,
That shall soothe this restless feeling
And banish the thoughts of day.

Not from the grand old masters,
Not from the bards sublime,
Whose distant footsteps echo
Through the corridors of Time.

For, like strains of martial music,
Their mighty thoughts suggest
Life's endless toil and endeavour;
And tonight I long for rest.

Read from some humbler poet,
Whose songs gushed from his heart
As showers from the clouds of summer,
Or tears from the eyelids start;

Who, through long days of labour
And nights devoid of ease,
Still heard in his soul the music
Of wonderful melodies.

Such songs have power to quiet
The restless pulse of care,
And come like the benediction
That follows after prayer.

Then read from the treasured volume
The poem of thy choice,
And lend to the rhyme of the poet
The beauty of thy voice.

And the night shall be filled with music,
And the cares that infest the day
Shall fold their tents, like the Arabs,
And as silently steal away.

THE CHARACTER OF A HAPPY LIFE

Sir Henry Wotton was a famous Englishman who lived from 1568 to 1639, and was eminent in the service of his country, being for many years ambassador at Venice. He became a clergyman, and wrote essays of a religious character. Like most of the scholars of his age, he also wrote poetry, and the following is the most remarkable of his few poems.

HOW happy is he born and taught
That serveth not another's will;
Whose armour is his honest thought,
And simple truth his utmost skill!

Whose passions not his masters are;
Whose soul is still prepared for death,
Untied unto the world by care
Of public fame or private breath;

Who envies none that chance doth raise,
Nor vice; who never understood
How deepest wounds are given by praise,
Nor rules of state, but rules of good;

Who hath his life from rumours freed;
Whose conscience is his strong retreat;
Whose state can neither flatterers feed,
Nor ruin make oppressors great;

Who God doth late and early pray
More of His grace than gifts to lend,
And entertains the harmless day
With a well-chosen book or friend;

—This man is freed from servile bands
Of hope to rise or fear to fall;
Lord of himself, though not of lands,
And, having nothing, yet hath all.

THE USEFUL PLOUGH

This is a charming old English song whose writer is unknown, but who must have known and loved rural life.

A COUNTRY life is sweet!
In moderate cold and heat
To walk in the air how pleasant and fair
In every field of wheat;
The fairest of flowers adorning the bowers,
And every meadow's brow;
So that I say no courtier may
Compare with them who clothe in grey
And follow the useful plough.

They rise with the morning lark,
And labour till almost dark;
Then, folding their sheep, they hasten to sleep;
While every pleasant park
Next morning is ringing with birds that are singing
On each green, tender bough.
With what content and merriment
Their days are spent whose minds are bent
To follow the useful plough!

THE FULL SEA ROLLS

W. E. Henley's was the restless soul that conceived these striking verses, when under the stress of physical pain.

THE full sea rolls and thunders
In glory and in glee,
O bury me not in the senseless earth,
But in the living sea!

Ay, bury me where it surges
A thousand miles from shore,
And in its brotherly unrest
I'll range for evermore.

THINGS THAT NEVER DIE

Miss Sarah Doudney was an English writer well known for her many excellent stories for grown-ups as well as her books for girls. Here we give an illustration of her pleasing verse

THE pure, the bright, the beautiful,
That stirred our hearts in youth,
The impulse to a wordless prayer,
The dreams of love and truth,
The longings after something lost,
The spirit's yearning cry,
The strivings after better hopes:
These things can never die.

The timid hand stretched forth to aid
A brother in his need,
The kindly word in grief's dark hour
That proves a friend indeed,
The plea for mercy gently breathed
When justice threatens high,
The sorrow of a contrite heart:
These things shall never die.

The memory of a clasping hand,
The pressure of a kiss,
And all the trifles, sweet and frail,
That make up love's first bliss;
If with a firm, unchanging faith,
And holy trust on high,
Those hands have clasped, those lips have met:
These things shall never die.

The cruel and the bitter word
That wounded as it fell;
The chilling want of sympathy
We feel but never tell;
The hard repulse that grieves the heart
Whose hopes were bounding high;
In an unfading record kept
These things will never die.

Let nothing pass, for every hand
Must find some work to do;
Lose not a chance to waken love:
Be firm and just and true:
So shall a light that cannot fade
Beam on thee from on high,
And angel voices say to thee
"These things shall never die."

FOR THOSE WHO FAIL

To the thought in these verses every heart will respond, for the world has had new reasons for honouring men who die before victory. The writer, Joaquin Miller, who was born in Indiana in 1841, published many volumes of verse mostly on the life of the Western States.

ALL honour to him who shall win the prize,
The world has cried for a thousand years,
But to him who tries and who fails and dies
I give great honour and glory and tears.

Give glory and honour and pitiful tears
To all who fail in their deeds sublime;
Their ghosts are many in the van of years,
They were born with Time in advance of Time.

Oh, great is the hero who wins a name,
But greater many and many a time
Some pale-faced fellow who dies in shame
And lets God finish the thought sublime.

And great is the man with a sword undrawn,
And good is the man who refrains from wine;
But the man who fails and yet still fights on,
Lo, he is the twin-brother of mine.

LULLABY

Exquisite alike in feeling and expression is this lullaby by William Barnes, the Dorsetshire parson, one of the few poets who has been able to touch the heart equally in ordinary and in dialect verse. The memory of this good clergyman, who died in 1886, remains as fragrant in Dorsetshire as his verse is fragrant wherever it is known.

THE rook's nest do rock on the tree-top,
Where few foes can stand;
The martin's is high and is deep
In the steep cliff of sand;
But thou, love, a-sleeping where footsteps
Might come to thy bed,
Hast father and mother to watch thee
And shelter thy head.
Lullaby, Lilybrow, lie asleep;
Blest be thy rest.

And some birds do keep under roofing
Their young from the storm;
And some wi' nest-hoodings o' moss
And o' wool do lie warm.
And we will look well to the house-roof
That o'er thee might leak,
And the beast that might beat on thy window
Shall not smite thy cheek.
Lullaby, Lilybrow, lie asleep;
Blest be thy rest.

THE OWL

Lord Tennyson in these lines has to some extent modelled his verse on Shakespeare's "When icicles hang by the wall."

WHEN cats run home and light is come,
And dew is cold upon the ground,
And the far-off stream is dumb,
And the whirring sail goes round,
And the whirring sail goes round;
Alone, and warming his five wits,
The white owl in the belfry sits.

When merry milkmaids click the latch,
And rarely smells the new-mown hay,
And the cock hath sung beneath the thatch
Twice or thrice his roundelay,
Twice or thrice his roundelay;
Alone, and warming his five wits,
The white owl in the belfry sits.

JESU, LOVER OF MY SOUL

There is no finer hymn in the English language than this beautiful composition by Charles Wesley. It is said that the author was sitting at his desk when a bird, pursued by a hawk, flew in at the window. The hawk, afraid to follow, flew away, and Wesley, struck by the incident, was inspired to write these verses. Charles Wesley was born in 1707 and died in 1788. He composed six thousand hymns, only a few of which however, are still in use.

JESU, lover of my soul,
Let me to Thy bosom fly,
While the nearer waters roll,
While the tempest still is high.
Hide me, O my Saviour, hide,
Till the storm of life be past;
Safe into the haven guide,
O receive my soul at last!

Other refuge have I none;
Hangs my helpless soul on Thee;
Leave, ah! leave me not alone,
Still support and comfort me!
All my trust on Thee is stayed,
All my help from Thee I bring;
Cover my defenceless head
With the shadow of Thy wing.

Wilt Thou not regard my call?
Wilt Thou not accept my prayer?
Lo! I sink, I faint, I fall,
Lo! on Thee I cast my care.
Reach me out Thy gracious hand
While I of Thy strength receive;
Hoping against hope, I stand,
Dying, and behold I live!

Thou, O Christ, art all I want,
More than all in Thee I find;
Raise the fallen, cheer the faint,
Heal the sick, and lead the blind.
Just and holy is Thy name,
I am all unrighteousness;
False and full of sin I am,
Thou art full of truth and grace.

Plenteous grace with Thee is found,
Grace to cover all my sin;
Let the healing streams abound,
Make and keep me pure within.
Thou of life the fountain art,
Freely let me take of Thee;
Spring Thou up within my heart,
Rise to all eternity.

THE MARSEILLAISE

This is one of the grandest songs of liberty that has ever been written. It is the national anthem of the French Republic. But it is something more, for wherever men are striving against oppression and striking for freedom The Marseillaise is their hymn. It is indeed the anthem of liberty all the world over. It was originally written in French, in 1792, by Captain Rouget de Lisle, and set to music by the captain for soldiers to sing as they marched: but because it was made known in Paris by the soldiers who came from Marseilles it was called The Marseillaise.

YE sons of France, awake to glory,
Hark, hark, what myriads bid you rise,
Your children, wives, and grandsires hoary,
Behold their tears and hear their cries!
Shall hateful tyrants, mischief breeding,
With hireling hosts, a ruffian band,
Affright and desolate the land
While peace and liberty lie bleeding?

To arms, to arms, ye brave!
The avenging sword unsheath!
March on, march on, all hearts resolved,
To victory or death.

Now, now the dangerous storm is scowling
Which treacherous kings, confederate, raise;
The dogs of war, let loose, are howling,
And, lo! our fields and cities blaze.
And shall we basely view the ruin
While lawless force, with guilty stride,
Spreads desolation far and wide,
With crimes and blood his hands embruing?

With luxury and pride surrounded
The vile, insatiate despots dare,
Their thirst of power and gold unbounded,
To mete and vend the light and air;
Like beasts of burden would they load us,
Like gods would bid their slaves adore.
But man is man, and who is more?
Then shall they longer lash and goad us?

O Liberty, can man resign thee
Once having felt thy gen'rous flame?
Can dungeon bolts and bars confine thee,
Or whips thy noble spirit tame?
Too long the world has wept, bewailing
That falsehood's dagger tyrants wield;
But freedom is our sword and shield,
And all their arts are unavailing.

LITTLE VERSES FOR VERY LITTLE PEOPLE

RULES FOR BEHAVIOUR

HEARTS, like doors, will ope with ease
To very, very little keys,
And don't forget that two of these
Are *I thank you* and *If you please.*

Come when you're called,
Do what you're bid,
Close the door after you,
Never be chid.

Seldom *can't*,
Seldom *don't*;
Never *shan't*,
Never *won't*.

THE BUTTERFLY'S BALL

COME, take up your hats, and away let us haste
To the Butterfly's ball and the Grasshopper's feast;
The trumpeter Gadfly has summoned the crew,
And the revels are now only waiting for you.

On the smooth-shaven grass by the side of the wood,
Beneath a broad oak that for ages has stood,
See the children of earth and the tenants of air
For an evening's amusement together repair.

And there came the Beetle, so blind and so black,
Who carried the Emmet, his friend, on his back;
And there was the Gnat, and the Dragonfly too,
With all their relations, green, orange, and blue.

And there came the Moth in his plumage of down,
And the Hornet in jacket of yellow and brown,
Who with him the Wasp, his companion, did bring,
But they promised that evening to lay by their sting.

And the shy little Dormouse crept out of his hole,
And led to the feast his blind brother the Mole;
And the Snail, with his horns peeping out from his shell,
Came from a great distance—the length of an ell.

A mushroom their table, and on it was laid
A water dock leaf, which a table-cloth made;
The viands were various, to each of their taste,
And the Bee brought his honey to crown the repast.

There close on his haunches, so solemn and wise,
The Frog from a corner looked up to the skies;
And the Squirrel, well pleased such diversion to see,
Sat cracking his nuts overhead in a tree.

Then out came the Spider, with fingers so fine,
To show his dexterity on the tight line:
From one branch to another his cobwebs he slung,
Then as quick as an arrow he darted along.

But just in the middle, oh! shocking to tell!
From his rope in an instant poor Harlequin fell;
Yet he touched not the ground, but with talons outspread,
Hung suspended in air at the end of a thread.

Then the Grasshopper came with a jerk and a spring,
Very long was his leg, though but short was his wing;
He took but three leaps, and was soon out of sight,
Then chirped his own praises the rest of the night.

With step so majestic the Snail did advance,
And promised the gazers a minuet to dance;
But they all laughed so loud that he pulled in his head,
And went in his own little chamber to bed.

Then as evening gave way to the shadows of night,
The watchman, the Glow-worm, came out with his light;
Then home let us hasten while yet we can see,
For no watchman is waiting for you and for me.

William Roscoe

OH, ring the bells ! Oh, ring the bells !
We bid you, sirs, good-morning ;
Give thanks, we pray—our flowers are gay,
And fair for your adorning.

Oh, ring the bells ! Oh, ring the bells !
Good sirs, accept our greeting ;
Where we have been the woods are green,
So, hey, for our next meeting.

Then ring the bells ! Then ring the bells !
For this fair time of Maying ;
Our blooms we bring, and while we sing,
Oh, hark to what we're saying.

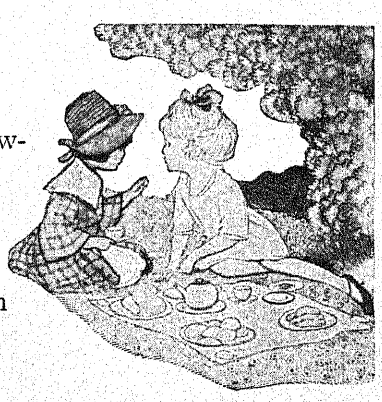
Oh, ring the bells ! Oh, ring the bells !
We'll sing a song with any ;
And may each year bring *you* good cheer
And each of *us* a penny.

OH where and oh where is my little wee dog ?
Oh where and oh where is he ?
With his ears cut short and his tail cut long,
Oh where and oh where can he be ?

TWO little dogs were basking in the cinders,
Two little cats were playing at the windows,
When two little mice popped out of a hole,
And up to a fine piece of cheese they stole.
The two little dogs cried : " Cheese is nice ! "
But the two little cats jumped down in a trice,
And soon cracked the bones of the two little mice.

THE cock's on the house-top blowing his horn ;
The bull's in the barn a-threshing of corn ;
The maids in the meadows are making of hay ;
The ducks in the river are swimming away.

YOU see merry Phyllis, that dear little maid,
Has invited Belinda to tea.
Her nice little garden is shaded by trees ;
What pleasanter place could there be ?



There's a cake full of plums, there are strawberries too,
And the table is set on the green.
I'm fond of a carpet all daisies and grass—
Could a prettier picture be seen ?

A blackbird (yes, blackbirds delight in warm weather)
Is flitting from yonder high spray.
He sees the two little ones talking together ;
No wonder the blackbird is gay.

Bow-wow, says the dog;
Mew-mew, says the cat;
Grunt, grunt, goes the hog;
And squeak goes the rat.

Chirp, chirp, says the sparrow;
Caw, caw, says the crow;
Quack, quack, says the duck;
What cuckoos say you know.

So, with sparrows and cuckoos,
With rats and with dogs,
With ducks and with crows,
With cats and with hogs,

A fine song I have made
To please you, my dear;
And if it's well sung
'Twill be charming to hear.

⊡ ⊡

In April
Come he will;
In May
He sings all day;
In June
He changes his tune;
In July
He makes ready to fly;
In August
Go he must.

⊡ ⊡

There was a little girl
And she had a little curl
Right in the middle of her forehead.
When she was good
She was very, very good,
But when she was bad she was horrid.

One day she went upstairs
When her parents, unawares,
In the kitchen were occupied with meals.
And she stood upon her head
In her little truckle-bed,
And then began hooraying with her heels.

Her mother heard the noise,
And she thought it was the boys
A-playing at a combat in the attic;
But when she climbed the stair,
And found Jemima there,
She took and she did spank her most emphatic.

There was a little boy and a little girl
Lived in an alley;
Says the little boy to the little girl,
"Shall I, oh, shall I?"

Says the little girl to the little boy,
"What shall we do?"
Says the little boy to the little girl,
"I will kiss you!"

⊡ ⊡

Mr. Finney had a turnip,
And it grew and it grew;
And it grew behind the barn,
And that turnip did no harm.

There it grew and it grew
Till it could grow no longer;
Then his daughter Lizzie picked it
And put it in the cellar.

There it lay and it lay
Till it began to rot;
And his daughter Susie took it
And put it in the pot.

And they boiled it and boiled it
As long as they were able;
And then his daughters took it
And put it on the table.

Mr. Finney and his wife
They sat down to sup;
And they ate and they ate
And they ate that turnip up.

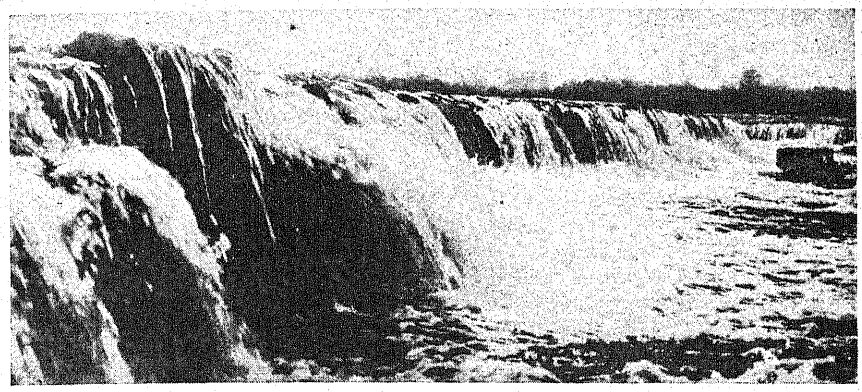
⊡ ⊡

The cock doth crow
To let you know,
If you be wise,
'Tis time to rise.

⊡ ⊡

Good reader, if you e'er have seen,
When Phoebus hastens to his pillow,
The mermaids with their tresses green
Dancing upon the western billow;
If you have seen at twilight dim,
When the lone spirit's vesper hymn
Floats wild along the winding shore,
The fairy train their ringlets weave,
Glancing along the spangled green—
If you have seen all this, and more,
God bless me! what a deal you've seen!

The Story of Where Power Comes From, What It Does, & How It Works



THE FUTURE OF POWER

We have seen in the story of Power how man has turned to account and developed almost every possibility of steam, oil, and electricity. The development of the power on which the world's industry has been built up has been described in these pages, and we have read how, from little beginnings often at first looked upon as curiosities, the colossal power stations of today have been evolved.

But in all these wonderful developments we have been apt to lose sight of the five sources of natural power which have been available since the world began. These are wind, water, light, the Sun, and the heat of the Earth itself. Perhaps new systems built on present lines will make the development of all these sources unnecessary, yet there are inventors always at work on natural power problems, and we cannot overlook the astonishing possibilities of their ideas.

Not very many years ago the windmill was a common sight, and the water wheel, too. The wind is a great force which has existed since the beginning, and the ceaseless flow of the stream will last until the end of time. The ancient people of the East who pumped their water with the power of an ass or a horse, tracing its circular path at the end of a shaft hour by hour, were the forefathers of our engineers of today. They took the power nearest to hand, and bent it to their will.

All the great engineering feats of the world have been carried out, until not long ago, with the power of the Sun. The light of the Sun, though it reaches us from ninety-five million miles away, has extraordinary chemical power, and by its magic agency the great waste product of human life, carbon dioxide, is combined in the cells of plants with moisture, and turned into the sugars and starches from which they actually grow.

Century after century this sunlit world was clothed in the sweet greenness of Nature's vegetation, and as that vegetation died and rotted, layers and yet fresh layers of dead vegetable matter became piled one on another, and thus in tens of thousands of years the coal seams were formed which were later on to provide power and wealth for the men who were destined to inherit the Earth.

All the years that man was seeking for mechanical power the coal lay hidden beneath his feet, and ever since it has been used on a great engineering scale it has been thrown away with incredible stupidity by burning it in millions of wasteful fireplaces and furnaces.

The reign of coal is perhaps drawing to a close, though it will last for centuries yet ;

but the method of using it to provide our power is beginning to undergo an immense change. Great engineers have repeatedly urged that the coal should be burned at the pit mouth, where it is, of course, cheapest, and there used to provide the energy for driving dynamos that could send out electric power to towns and villages. We know today that it is much more economical to produce power in great quantities and to distribute it from central power stations than to make it in little quantities with scattered units.

HOW MAN OBTAINS POWER FROM THE LIGHT OF THE SUN

Now let us come to what is surely one of the greatest victories of man over the living things in the Earth he has inherited. Today he can obtain power directly from the light of the Sun. Even if all the coal in the world were suddenly exhausted he could go on making his own supplies of power from year to year without any such gradual preparation as was required by Nature to produce coal.

Power can be obtained from oil and spirit, as we know. Every motor car is driven by spirit. Many giant ships are today propelled by oil. The natural oils which give us our lighting, our lubricating oil, and our petrol, are obtained from inside the Earth, and their formation possibly took as long as did coal itself. But today we can produce motor spirit in enormous quantities with the help of bacteria; we can ferment grain, straw, and grass; in fact, all kinds of cheap and waste vegetable matter; and by distilling the fermented liquor we can obtain alcohol, which will surely become one of the greatest sources of power of future generations. It will be used as power for building up instead of as a beverage leading to the destruction of life.

THE WONDERFUL TREE IN INDIA WHICH SUPPLIES POWER FOR ENGINES

We are harnessing the tiniest creatures in the living world, and making them produce the power to drive the greatest machinery man has invented! A million microbes are required to make a drop of motor spirit, yet these micro-organisms grow with such amazing rapidity that a spirit factory using them could turn out enormous quantities of motor fuel a day.

Not only can power alcohol be obtained from grain, potatoes, and straw, but it is also now produced on quite a large scale from flowers. There is a tree which flourishes in the Central Provinces of India, known as the mahua (or mowha) tree. It grows wild and uncultivated in Hyderabad, where there is enough of it to produce three-quarters of a million gallons of alcohol a year. The mowha is a wonderful tree, because it provides not only engines with power, but human beings as well. The fallen flowers form a large part of the food supply of millions of people in some parts of Central India, and make good food for cattle. Tests made of the spirit obtained by distilling the fermented flowers show that, although more of the spirit is required compared with petrol, it is perfectly satisfactory and can be run in any ordinary motor engine.

The direct heat of the Sun has been used by Mr. Frank Shuman, an American inventor, in a wonderful engine which has been employed with some success in countries like Egypt.

AN ENGINE DRIVEN BY THE SUN TO HELP TO MAKE THE DESERT BLOSSOM

The great heat of tropical countries is quite sufficient to raise water to a temperature high enough to cause it to give off vapour so that the rays of the Sun, trapped by glass, are concentrated, as it were, and their warmth stored up. By constructing a special boiler and inventing a steam-engine which will work with very low pressure, Mr. Shuman was able to obtain enough power to work pumping engines for irrigation of the land. Such "sun engines" may prove to be of great value where coal is difficult to obtain, though it is very doubtful today whether the ease with which motor spirit can be transported will not spoil their chances of competing in the realm of power.

The wind wheel is another example of the successful use of a natural source of power. Engineers have devised new forms of wind wheels which are geared to dynamos so that their power can be used to store up electricity in accumulators. In this way a store of power is obtained, which can be drawn upon when the wind drops. Such installations are used in country houses and on farms where fuel is difficult to obtain.

In the world search for power some countries have been driven to amazing schemes. The Italians have been scattered to the ends of the Earth through lack of coal and its high cost when imported from other countries. There is, of course, immense heat below the ground, and it is not so far below the surface in volcanic

neighbourhoods. The daring idea thus occurred to the Italians to obtain heat from the interior of the Earth itself. Vast sources of power are known to be trapped down in the Earth, and the ingenious Italian engineers have shown the possibility of tapping some of this heat through volcanoes. Volcanic heat has been conveyed to the surface by means of pipes and used to drive engines and create electricity. As engineering science advances it is quite possible that this tapping of the Earth's own energy may be utilised on a still greater scale.

The most colossal source of natural power is, of course, water. There are two sources available—the rushing torrent of a swift river or waterfall, or the continual rise and fall of the sea caused by the Earth's rotation and the attraction of the Moon. In this field millions of horse-power are already being utilised, power which for endless ages has literally run to waste. The old-fashioned water-wheel of the miller has given place to the huge turbines of the electric generating station, and furnaces are heated, towns lighted, and railways run from the current obtained from the ceaseless flow of great rivers.

THE STUPENDOUS ENERGY WAITING TO BE OBTAINED FROM RIVERS AND FALLS

Italy, Norway, and Switzerland were quick to take up the matter, and about a million horse-power is now obtained in each of these countries from waterfalls and rivers. Sixty million horse-power is available in the United States from water, and fifteen millions are already in use. Germany is actually using nearly fifty per cent of her total water-power for generating electricity. The greatest water-power country of the future is Canada, where seventy millions of horse-power are waiting to be harnessed. In our own country, the resources are small but, nevertheless, water-power is being used on an increasing scale, and we are even studying the question of obtaining power from the tides.

Trapping the tides is by no means an easy matter, yet it is full of possibility. Of all the ways that have been invented for obtaining energy from the rise and fall of the sea, the only practical one seems to be by allowing the water to run at high tide into a basin which is dammed, and then letting the water so trapped run into turbines, which in turn drive dynamos and generate electricity. The energy trapped is thus intermittent, and as the tides vary the quantity of water will vary, too.

But, when we think that the tidal power to be got from the installation now under consideration for the River Severn would amount to 450,000 horse-power, we realise how vast a source of untapped sea-power must exist in the world.

HOW THE MIGHT OF A RIVER IS SENT ON A JOURNEY OVERLAND

At the close of 1923 the United States and France made further proposals for employing water-power to lower production costs in industry. The American plan was merely suggested, but definite plans for using the force of the tides, supplemented by power obtained from a river nearby, were adopted experimentally for installations in Brittany.

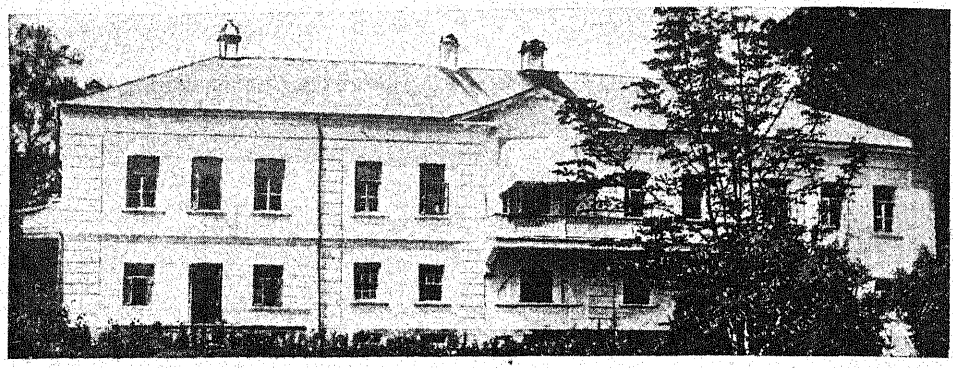
Power made from water has often to be sent or distributed over long distances. Such power must be sent through overhead wires at a very high voltage, perhaps a hundred thousand volts, or even more, and when it arrives at the place to be supplied it must be converted down into ordinary voltage by means of transformers.

Perhaps the greatest power of future times will be made actually in the chemist's laboratory. Scientists have long tried to learn the secret of those marvellous processes of life by which plants grow. Amazing as it may seem, they have succeeded in making a ray of light produce sugar from carbon dioxide and water, trapping the light with a green dye as the plant cells trap light with chlorophyll. It is an easy matter to convert sugar into starch, and both these familiar carbohydrates can be easily fermented by microbes, when they become split up into carbon dioxide and *alcohol*. Almost sublime in its simplicity, this process is the result of the highest scientific skill and knowledge of the century. It may prove to be the final solution of man's search for power

THE GREAT FUTURE OF ELECTRICITY IN THE WORK OF THE WORLD

The ideal medium for the supply of power will always remain electricity. The vast energy of a 10,000 horse-power steam-engine or water turbine can be run in the form of electric current along two metal wires for a thousand miles, and there turned again into mechanical power. Long-distance railways are in many countries being electrified; other countries are planning to turn their water-power into electricity and even to send it to other lands.

THE SUPREME FIGURE OF RUSSIAN LITERATURE



THE CHATEAU OF YASNAYA POLYANA, THE HOME OF COUNT TOLSTOY

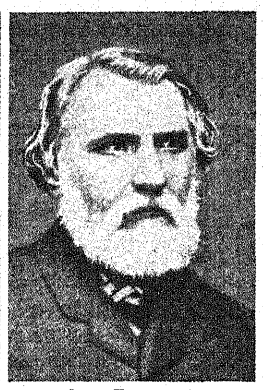
TOLSTOY AT WORK IN HIS BARELY FURNISHED STUDY

TOLSTOY TAKES A WALK WITH HIS SISTER, THE ABBESS OF A CONVENT

Imperishable Thoughts of Men Enshrined in the Books of the World

Nicholas Nekrasov

Nicholas Gogol


Ivan Turgenev

Alexander Pushkin

Feodor Dostoyevsky

Maxim Gorky

THE LITERATURE OF RUSSIA

RUSSIAN literature, which now occupies a distinctive and considerable position in the world's literature, is of quite modern origin. Russian books that will be permanently read outside of Russia date back, at the farthest, for 200 years, and nearly all of them were written in the nineteenth century. It was not till the Napoleonic wars were over that Russia had a Russian history of herself which helped her to realise her own place in the world, or that she produced a national poet who expressed her character and aspirations in her own tongue, discarding imitations of the poets of the nations that had an older civilisation.

But almost as striking as the lateness of her beginning with a literature of her own is the rapidity with which it arrested the attention of the world. Nicholas Karamzin published in 1816 the first eight volumes of his History of the Russian State. Alexander Pushkin, the first truly national Russian poet, who found inspiration in Karamzin's History, died in 1837; and forty years later there had been written all the novels by Gogol, Turgenev, Tolstoy, and Dostoyevsky that have carried Russian fiction over the civilised world. Seed late sown brought an abundant harvest.

Of course Russia had a far earlier primitive literature, made and sung, or told, by the people before it was written down, somewhat like the Norse Sagas. It consisted of legendary poems or tales, collectively called Byliny. The subjects were the legendary heroes of the race, and these orally circulated stories formed groups or cycles that referred to each of the regions which had in succession been prominent in the country's earlier history. Vladimir, Prince of Kiev, was a central figure, and Novgorod, Moscow, and the Cossack country each had its share of legendary lore casually transmitted through popular memory. A group of such tales, chiefly of peasant origin, had had time to form even around the character and doings of Peter the Great, who died in 1725.

Two twelfth-century Chronicles have been preserved—The Chronicle of Kiev, the city round which the earliest Russia formed itself, and The Story of the Raid of Prince Igor, a later twelfth-century prince of Novgorod. These Chronicles, written in a kind of singing prose, have features which are expanded in modern Russian literature, such as using Nature as a background for a story. The Raid of Prince Igor is especially interesting for the

light it throws on early Russian history and language.

It must be remembered that at this time Russia was cut off from the west and south of Europe by her position far inland, and knew little of such culture as they had. Her isolation was increased by her religion; she belonged to the Greek Church, with Constantinople as its centre. Indeed, it was not till the second half of the seventeenth century, in the reign of the father of Peter the Great, that the literatures of the West began to percolate to Russia, and give her writers new models for their writings.

THE MAN WHO STANDS AT THE PARTING OF THE WAYS

Moscow had now become the centre of Russian life, but Kiev was more closely in touch with Western learning, and to Moscow from Kiev came Simeon Polotsky, who acted as tutor to Peter the Great's half-brother the Tsar Feodor, and introduced the writing of verse in Russian. He it was who wrote the first Russian play, The Prodigal Son. Polotsky marks the dividing line between primitive Russia and the Russia which began to know and imitate Western Europe. His life was contemporary with that of John Milton.

Russian literature of the eighteenth century expressed the influence of German, French, and English literature on the minds of Russian authors before they began to build up a literature of their own, distinctive in style, subject, and temperament. The strongest influence in introducing German thought was Michael Lomonosov, a son of an Archangel fisherman. As a lad Lomonosov became absorbed in a love of learning. At seventeen he made his way to Moscow, became conspicuous as a student, passed on to St. Petersburg, and then studied in Germany. Returning to Russia he founded the University of Moscow, and finally became rector of the University of St. Petersburg.

THE SCIENTIST WHOSE WRITINGS HELPED TO DEVELOP THE RUSSIAN LANGUAGE

Lomonosov's chief interest was in science, but he had a very wide intellectual range, and through his writings, which included verse, he helped to develop the Russian tongue, which he said combined the vivacity of French with the strength of German, the softness of Italian, and the conciseness of Greek and Latin.

The influence of French literature became predominant in Russia during the reign of the Empress Catherine the Second, sometimes called the Great. That strong-minded German usurper made French the predominant language of her Court, until Russian enthusiasm for France was chilled by the excesses of the French Revolution. The characteristic Russian writer of the period was the poet Gabriel Derzhavin, who was born in 1743 and died in 1816. Though he had a fine mastery of his native language he cannot be ranked as a truly national poet, for his resounding style was influenced from abroad. He was an admirer of the Gaelic forgery Ossian.

Though Catherine acted as a patron of French writers, such as Diderot and Voltaire, who laid the intellectual foundations of Revolution, she sternly repressed freedom of the Press in her own country. An instance is seen in the case of an unfortunate official, Alexander Redistchev, who was indiscreet enough to write a book on A Journey to St. Petersburg and Moscow, describing the pitiable condition of the Russian peasantry, or serfs. The descriptions were perfectly true, but Redistchev was sentenced to death for writing what would now be regarded as a humane and public-spirited appeal. He was banished to Siberia, kept there till his health was undermined, and eventually brought back, and he committed suicide when threatened with a dreaded renewal of exile.

KARAMZIN AND HIS UNFINISHED HISTORY OF THE RUSSIAN EMPIRE

Not till Alexander the First succeeded to the Russian Tsardom in 1801 did Russia begin to live an independent literary life. The man whose writings mark the beginning of the change is Nicholas Karamzin. His father was an officer of Tartar race, and the boy, after education at Moscow and St. Petersburg, and some experience in literary work, travelled in Germany, France, Switzerland, and England. Returning to edit a Moscow journal, he published Letters of a Russian Traveller, and also a number of translations into Russian from languages ancient and modern. Finally he settled down to write the book that Russia needed most of all, a History of the Russian Empire. He read his volumes to the Tsar as he wrote them. Eight volumes were published in 1816, and three more, bringing the history up to 1613, were finished when the writer died in 1826.

As a historian Karamzin was a defender of whatever he found done by authority in Russia's past, whether it was tyrannical

or not. His aim was to arouse in Russians the sense of nationality. His success was great from the point of view of a conservative patriotism. Russia realised herself. She began to speak to the world through a literature that was her natural expression, and not an echo of French, German, or English writing. Karamzin's success was partly due to the glow and pride of his patriotic writing, but it was equally due to his prose style being plain and simple and clear, like ordinary speech. Lomonosov and Karamzin are the founders of a Russian prose style.

THE CLEVER FABLES OF KRYLOV THAT EVERYBODY LIKED

Among the Russian writers of the nineteenth century who must be named, besides the half dozen that are more commonly known, are Ivan Krylov (1768–1844) who gained fame as a poet first by translating La Fontaine's fables, and then by writing fables of his own invention, simple, humorous, dramatic, appealing to all classes and all ages. Russia has no more popular poet.

Literature was now growing directly out of Russian life. One instance is that of perhaps the most famous comedy, or satire, that holds the Russian stage. When Alexander the First died, in 1825, an unsuccessful rising took place, leading to five of the conspirators being hanged.

The state of society in Moscow at this time was satirised in most pungent style by a young foreign office official, in a play called The Misfortune of Being Too Clever. The author, Alexander Griboyedov, writer of a play which has now been popular for more than 90 years, had a strange end. He was sent as Russian Ambassador to the Persian capital Teheran. In the embassy there some Russian subjects, Georgians and Armenians, took refuge, but the Persian populace was incensed against them, and, storming the building, killed the ambassador, who was shielding them.

THE MAN WHO TRANSLATED THE ENGLISH POETS FOR THE RUSSIAN PEOPLE

A poet who broadened the Russian idea of poetry by showing that the poetry of the West has not been exhausted in France, was Basil Zhukovsky (1783–1852) who was tutor to the children of the Russian royal family. He published in 1802 a translation of Gray's Elegy, and followed it with translations from Byron, Moore, and Southey, as well as Goethe, Schiller, and other German poets. Late in life he translated the Odyssey. Zhukovsky is regarded as a singularly successful preserver of poetical quality in translated verse.

The new start of genuine Russian literature was most clearly made by Alexander Pushkin, though it is perfectly easy to trace the sources of his inspiration to foreign writers. Still, his subjects were essentially Russian, and his fine use of his own language and his poetical genius enabled him to thoroughly Russianise any foreign suggestion. Pushkin is generally accepted as the greatest of Russian poets, and he is also a master of prose.

He was born at Moscow in 1799, and educated near St. Petersburg, where he attracted attention by his poetry when he was a schoolboy. At first he wrote in French, but soon discarded it for his own language. Having become mixed up in dangerous politics after he had become a Foreign Office official, he was sent to the South of Russia on duty, and his poetical impulse was stimulated by the scenery and romance of the Caucasus. There he wrote lyrics and tales obviously prompted by the influence of Byron. On his return a poem on gypsy life won him wide popularity.

THE EXTRAORDINARY RUSSIAN WHO WAS KILLED BY A DUTCHMAN

Pushkin was now enthralled by Shakespeare, and in imitation of him wrote his chronicle play Boris Godunov. Later, his greatest work, Onegin, took the form of a poem that is a novel. Now it is probably the most quoted literary work in the Russian language, though its rise to fame was not swift. Pushkin, however, had to overcome the taste for bombast derived from Russian imitations of French verse.

His mind was extraordinarily prolific, though it usually worked on a suggestion from other poets, and his output was abundant and varied. Historically he relied on Karamzin's history, and felt strongly the thrill of his ardour. Pushkin was killed, at the age of 37, in a foolish duel with a Dutchman who had married his wife's sister. He had brought into Russian poetry a note of freshness which has tended to brighten it ever since.

Two other Russian lyrical poets have a sure resting place in the hearts of the people. Michael Lermontov is believed to have been of Scottish descent, and his name a Russianising of Learmont. His

was a turbulent nature. He became an officer, but for his quarrelsomeness was sent to the Caucasus, which at that time was in a frequent state of revolt. Here the splendid scenery and romantic surroundings acted as inspirations, and he wrote poems which are known to almost every Russian child. Returning to Moscow, he became a social figure, but his life was wayward, and twice more he was exiled from the society he loved. Finally, he met his death, at 26, in a duel in the Caucasus, the land which had called forth his genius. Lermontov wrote a novel (A Hero of our Time) with himself as its hero, and the novel is believed to have been the cause of the quarrel which led to his death. He was one of the poets who felt strongly the influence of Byron, though his own writing was distinctly national in its spirit and expression.

Alexis Koltsov (1809–1842), contemporary with Lermontov, was a true peasant poet. His subject was the life of the rural people, and he sang that in lyrics natural as those of Robert Burns. As a cattle dealer he moved about freely, and was a part of the life he sang. Even among the illiterate his songs are known.

THE CRITICS WHO ARE TOO FOND OF TEARING UP

Other poets of distinction are Nicholas Nekrasov (1821–1877) a grim portrayer of peasant life in a style resembling that of Crabbe, the English realist; and Count Alexis Tolstoy (1817–1875), who wrote satires and historical plays, but is best known for melodious love lyrics, nature poems, and ballads.

It is not, however, through its poetry that Russian literature has become widely known, but through its prose, and particularly its fiction.

Other forms of prose writing have been successful, but in a far less degree. Vissarion Belinsky (1811–1847), founded a school of criticism which was more vigorous than wise, and Russian criticism has always been lacking in moderation and toleration. It is inclined to tear rather than to dissect its subject. Much of it, as, for instance, that of Alexander Herzen (1812–1870) was written outside of Russia. Herzen preached Communism for many years in London through a newspaper of his own. Michael Saltykov (1826–1889) was a savage satirist who found much in Russia to bitterly expose. His work compares with that of our Jonathan Swift. His writings have not been translated. This cannot be said of the latest of Russian critics and historical romancists, Dmitri Merezhkovsky. His Christ and Antichrist has been translated into many languages, and his interpretation of Russian fiction is well known.

The first great Russian novelist was Nicholas Gogol, who was born in the Cossack country in 1809, and lived till 1852. From his twentieth to his twenty-seventh year he lived in Petrograd, first as a Government clerk and then as a professor of history.

THE SPLENDID WORKS OF RUSSIA'S FIRST GREAT NOVELIST

But all the time Gogol's heart was away in Little Russia, and he put his remembrances into some sketches, Evenings on a Farm near Dikanka, which determined his future. Other sketches of Cossack life followed, with a strange mingling of the real and the fantastic, fun and melancholy. He was only 27 when he wrote a comedy which competes for the position of the most popular on the Russian stage, and has been seen with cordial appreciation on the English stage. This is The Inspector-General, a satire on the truckling, flattery, jealousy, and corruption of the Russian official world. The play was saved from official censorship by the Tsar, who ordered it to be played.

After the successful appearance of his comedy Gogol left Russia and lived the rest of his life abroad, chiefly in Rome, where he wrote his masterpiece, the novel Dead Souls, an exposure of the serf system then enslaving the Russian peasantry. By his simple sincerity in picturing real life, Gogol led Russian fiction away from wordy pomposity. Gogol did not complete Dead Souls. It was planned in three parts, and only the first part and an incomplete section of the second part is published. Possibly the book was not becoming quite what its author meant it to be; as he lived he grew more and more religious and humble, and more and more inclined to advocate patient suffering.

HOW TURGENEV INTRODUCED THE RUSSIAN CHARACTER TO EUROPE

Ivan Turgenev (1818–1883), the first Russian novelist to win a large reading public outside Russia, was born of a good family. Like so many Russian writers, he found his early writings officially frowned on as tending to be dangerous, and he was kept on his family estate for two years.

When he was free he left Russia for Germany, and later passed to Paris where he wrote most of his novels of Russian life.

Turgenev introduced Russian character to Europe; but he did not keep quite in touch with the Russia of his own day. He was a poet in essence, and a stylish with a gift of elegance, and of finish in form, which were almost French in character. That form he carried into Russian prose with advantage to it, but he had not as close a grip of Russian life as some brother novelists of equal fame had. The foreign reader feels a strangeness in Russian character, as depicted by Gogol, Tolstoy, Dostoyevsky, and Gorky, which borders on the unnatural, and yet is not unnatural in Russia. This strangeness is not felt in the same degree in Turgenev's novels, and they are therefore accepted without hesitation. Perhaps the difference comes from writing out of memory, outside of the actual Russian atmosphere.

Turgenev's first prose writings, his Sportsman's Sketches, showed his naturally tasteful finish. His Nest of Gentlefolk won him wide popularity. It was after the publication of his Fathers and Sons, in 1862, a story which did not satisfy extremists on either side in politics, that he went abroad. But the tale is his masterpiece. Virgin Soil, his later ambitious story, was written when Turgenev had withdrawn from a Russian environment. Unquestionably he is one of the great novelists of Europe. He knew the nobles of Russia by birth and contact, and the peasantry by sympathy and observation; but peasant life had never been his own, and his mother never forgave him for doing such an undignified thing as writing what anybody might read.

COUNT TOLSTOY AT WORK IN THE FIELDS—FROM THE PAINTING BY J. E. REPIN

Count Leo Tolstoy is far more widely known than any other Russian, because his writings have covered an enormous range of human interest. He appeals to different types of people, as a novelist with ever-varying views, a religious zealot seeking rest, and an economic and social pioneer. In all these manifestations he expresses himself in striking literature, powerful in its simplicity. Unquestionably

Tolstoy is a landmark in the world of literature. There has been no one like him. It is questionable if there could be anyone like him outside of Russia.

Born of a noble family, Tolstoy began life as a soldier, and saw service in the Crimean War. Already he was writing poetry, tales, sketches, or an autobiography of his youth. Then, after a period of social gaiety, he spent some time in foreign travel, still writing tales. Next, followed his marriage, and more restful writing, merging into the ambitious composition of his greatest books—Peace and War, and Anna Karenina.

THE NOBLE AIMS OF TOLSTOY THAT ARE REFLECTED IN HIS WORKS

He was now famous throughout the world as a writer, but the problems of religion and life absorbed his thoughts, and he tried to plan a life of perfect goodness and of strict social justice. These aims produced much more literature. Later still he wrote other novels including the Kreutzer Sonata, and Resurrection. Finally, having failed to rid himself of all his earthly possessions, and to break with the social conditions by which he was surrounded, he died at the age of 82, at a railway station, while on the way to retirement in a monastery.

Tolstoy was a Russian through and through. He pursued whatever object he had in view with a narrow intensity; and whatever object he was pursuing he wrote (as the ordinary Russian talks) a great deal about it, and with great fervour. He had the power of giving his writing, whatever its subject might be, the clearness, simplicity, and power of great literature. What he had to say he said choicely if it needed choiceness, powerfully if it needed impressiveness. His literary strength was greatest when he wrote Peace and War, and, judged by that epic tale, he will remain one of the world's supreme novelists. Beyond that, his personality, as shown in all his writings, is a fascinating study.

THE STORMY LIFE OF THE COLOSSUS OF RUSSIAN LITERATURE

Feodor Dostoyevsky (1821—1881) is regarded by many who best understand the Russian character as the greatest Russian novelist of all; but special experience of the Russian temperament is needed to reach that opinion. When his writings are judged in conjunction with his life, however, they become abnormal in their power.

Dostoyevsky was educated for the army, but adopted literature and showed the direction of his sympathy by writing a story called Poor Folks. It was recognised by critics as charged deeply with emotion, and it gave its author a favourable start. But Dostoyevsky, having joined a political discussion society, was suddenly arrested as a member of a revolutionary organisation, imprisoned, sentenced to death, and then, instead of being hanged, sent to exile in Siberia for four years, with hard labour, to be followed by service for life as a private soldier. He served his four years, and three more as a soldier before he was recalled to Russia.

Such was life in the old Russia.

This experience in Siberia coloured all Dostoyevsky's remaining years. It had broken his health and left him an epileptic; but it filled his heart with infinite compassion, and a great longing for a time, when a spirit of mutual kindness should govern the actions of man towards man. He had seen life at its best and worst, and his experiences were told in a book, Buried Alive in Siberia, while his impressions took form in a novel which he called Crime and Punishment. The book moved the heart of Russia.

HOW DOSTOYEVSKY REVEALED THE TRUE NATIONAL HEART OF RUSSIA

Dostoyevsky continued writing tales in poverty. The quality of his work was uneven, but he again reached high-water mark in his novel The Idiot. The hero is a simpleton so good and unselfish that he impresses the selfish and the vile, and in his simplicity reads the minds of the cunning.

How greatly the novelist had impressed his countrymen was not realised until his death in 1881, when enormous crowds attended his funeral and showed a devotion to his memory that has scarcely a parallel in history. Though Dostoyevsky's writing was hasty, and often lacking in constructive skill, it had a tenderness, touched with melancholy, which moved to its depths the Russian spirit, and revealed how truly the national heart had been interpreted by a novelist whose life had been overshadowed by pain and strife.

Though Russian literature began late, and has had to struggle against repression, and against a large measure of national illiteracy, it has given in the last hundred years considerable additions to the books which command attention from the whole world.

CALVARY AND AFTER

We can scarcely bring ourselves to think of Jesus in the hands of the Roman soldiers. No greater difference can be imagined than that which shocks our souls in the contrast between the gentle Jesus on the one hand, and, on the other, the brutalised soldiers of Rome.

It requires no words to acquaint us with the sufferings of Jesus at this terrible hour of his life. We feel, with a shudder of revulsion, the awful cruelties to which the soldiers subjected the Light of the World. No historian is required to write the narrative; no painter need paint the terrible picture,

We *feel* the appalling horror in our souls. Is it not dreadful to us, in the first place, to contemplate the scourging of Jesus? It is not only that he was so innocent of the charge laid against him, not only that he was so tragically misunderstood by the men who condemned him, but because, of all the beings who have ever lived, we can think of none more tender, more gentle, more loving.

That he should have his garments stripped from his body by rude hands; that he should be thrust and pushed towards the pillar; that there he should be bound naked with cords, and that through his flesh the cruel lashes should tear—this is something which overwhelms us with grief. Think of him there, deserted by his friends, so lonely, and so weary. Not once during the long night had he closed his eyes. The days leading up to that night had been spent in doing good and teaching laws which have exalted all the human race. So tired, so worn, so broken, and so bowed. Yet, even while the hissing whips fly and sting at his body, his ears are assailed by mockeries and taunts, and surely the most cruel laughter that ever came from human lips.

Nor was this scourging to be the end of mockery. The soldiers, who saw only a cause for laughter in the meek and bleeding figure at the pillar, bethought themselves of dressing him as a king. They had heard that this young Jew was charged with rebellion against Rome, that he had called himself King of the Jews.

For this crime they had been ordered to punish him; but it was a crime which moved them to scornful laughter. This man a king! This weakling to overthrow Rome! They sent for a robe of royal purple. One of them brought brambles, and, with a glove of mail, twisted and plaited them into the shape of a crown. Another brought a reed to act as a sceptre. There lay the trappings of a king. The old and faded robe was thrust upon the stricken body. The crown of thorns was pressed over the

dishevelled hair till it pierced the moist brows. The reed was placed in the right hand. Then they crowded about him, laughing and mocking and calling: *Hail, King of the Jews!*

It has been said that Pontius Pilate saw him in this piteous guise, and, moved by the spectacle, had him brought out to the Jews again, as though to make them ashamed of killing such a poor king. He pointed to Jesus, and said, "Behold your king!" But the Jews cried with renewed rage: "Away with him! Crucify him!"

Before such a storm of hatred and priestly rage Pilate was powerless. He turned from the shrieking crowd and from the mock king at his side, and gave orders for the death of Jesus. With his own hand, it is said, he wrote the mocking superscription to be nailed on the cross: "Jesus of Nazareth, the King of the Jews." These are the only words written by the great Roman that have descended to posterity.

THE STRONG MAN WHO CAME TO THE HELP OF JESUS IN HIS LAST HOURS

The mockery was now at an end. Jesus was stripped of the purple robe, clad in his own garments, and led away to be crucified. There were two thieves to be punished with death on this day, and a procession was formed, with Jesus and the two thieves carrying the crosses on which they were to die. But the weight was too great for those gentle shoulders, and Jesus stumbled under it.

A man named Simon, from Cyrene, was among the people watching the procession. He was strong and powerful, and the Roman soldiers bade him come forward and carry the Cross of Jesus. Perhaps it was with the smile of a strong man that he came slowly forward, lifted the heavy burden to his shoulder, and marched beside Jesus, proud to display his strength. But that action, of which he perhaps thought so little, has immortalised his name. He walked with Jesus to Calvary. At the place of death, Jesus was offered a cup of wine mixed with myrrh, a draught which stupefied the senses, so that the agony of crucifixion was not felt so keenly. He rejected it. Weak and broken though he was, so weak that he could not carry his Cross, he yet refused the merciful draught which minimised the agony of death.

The Cross was laid upon the ground. Jesus was stretched upon it, fastened by cords at the wrists and ankles. Then the hands were extended, and through them nails were driven into the wood. Afterwards nails were driven through the feet, resting on a block of wood projecting from the perpendicular beam. Then the heavy Cross, with its sacred burden, was raised from the earth, carried a little way, and dropped into the hole prepared for it.

THE MOCKERY OF JESUS AS HE HUNG UPON THE CROSS

While the soldiers trampled stones and earth into this hole there stood by a company of Jews crying out to the agonised Jesus: "Ah! Thou that destroyest the temple and buildest it in three days, save thyself, and come down from the cross!" The priests who stood by, said: "He saved others; himself he cannot save!"

The crosses of the thieves were raised and jolted into the ground on each side of Jesus. Tortured by their pains, the thieves joined in the blasphemy, though St. Luke tells us that one of them afterwards repented and rebuked his fellow-criminal. "We receive the due reward of our deeds," he exclaimed, "but this man hath done nothing amiss." Jesus hung there silent and majestic in his awful pain.

St. Mark, the earliest recorder of this saddest tragedy of all time, tells us that, afar from the Cross, there stood certain women who had followed Jesus, who had done him service, and to whom he had given peace. These women, standing distant from the Cross, were the only members of that multitude who had loved and followed him. Near him, so close that he could hear their voices, were his enemies, mocking the throes of his agony with pious taunts and religious sarcasms.

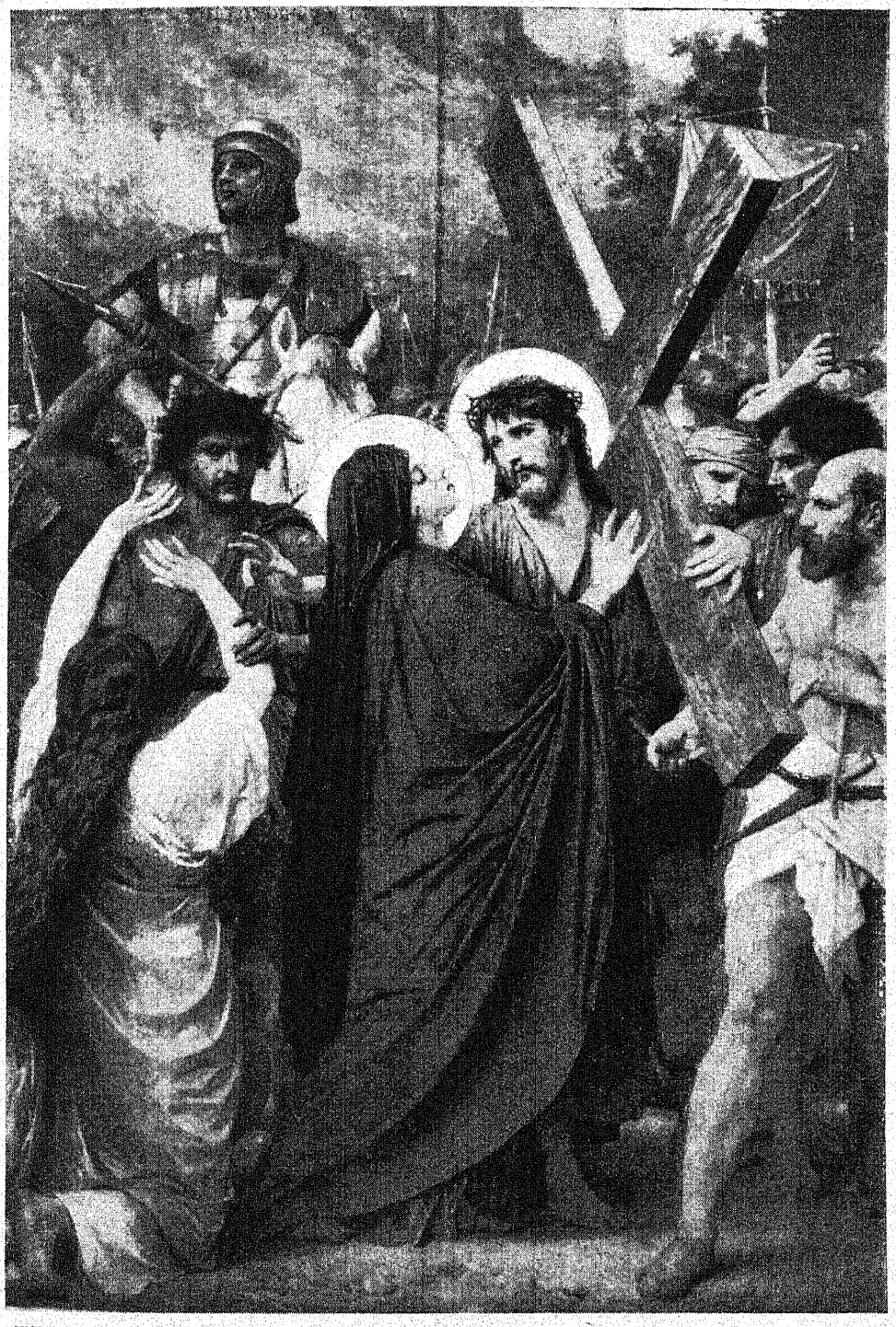
THE ROMAN SOLDIER WHO STOOD AT THE CROSS WAITING FOR THE END

Jesus perished in a terrible loneliness. Perhaps the only man moved by the sublime dignity of Christ upon the Cross was the Roman centurion standing in front of it, waiting for the end.

Over that scene there fell gradually a darkness such as we may experience even in the midst of summer, and, as this darkness deepened with the creeping hours, Jesus, silent till now, lifted up his voice and cried aloud: "My God! My God! Why hast Thou forsaken me?"

Someone, more pitiful than the rest, filled a sponge with vinegar and lifted it to the lips of Jesus on a reed. But Jesus uttered a cry, bowed his head, and died

PASSING BY THE SORROWFUL WAY



JESUS ON THE WAY TO CALVARY URGES THE WOMEN OF JERUSALEM NOT TO WEEP FOR HIM

This painting by Bouguereau is reproduced from a Braun Clement photograph; others on these pages are reproduced by courtesy of Messrs Alinari Anderson, and Beckett & Sons

One exclamation was heard at that moment, the involuntary admiration of the Roman centurion. "Truly," he cried, "this man was the Son of God."

That evening a noble Jew, Joseph of Arimathea, presented himself before Pilate and asked permission to bury the body of Jesus in his garden. Pilate was amazed to learn that Jesus was already dead, and questioned the Roman centurion. When he was assured that it was so he gave permission to Joseph.

THE NOBLE JEW WHO LAID THE BODY OF JESUS IN HIS GARDEN

The priests did not need that wounded body. The dead Jesus was no menace; with his death their hatred ended. It was only a feeling of reverence that inspired Joseph to make his request. He had known Jesus, had been impressed by his character and truck by his teaching. His heart revolted from the thought of the barbarities and insults which the mob might possibly practise on the body. While all the disciples were still far away, this chivalrous Jew drew near to the Cross.

He wrapped the body in fine linen, and laid it in a sepulchre hewn out of a rock in his garden, rolling a mighty stone before the door.

The faithful women who, from a distance, and with what anguish we can well imagine, had watched the crucifixion and had seen Jesus taken from the Cross and laid in the tomb by Joseph, afterwards returned to the dwelling-place and prepared spices and ointments for embalming the body. They were convinced that he was dead. Whatever he might have said to them about his victory over death, they knew now that death had closed those gentle eyes and sealed those tender lips. From afar they had watched. If they had entertained some wild hope that this gracious Friend would step down from the Cross and subdue the power of Rome, that hope must have dwindled as the hours passed, and must have expired with the cry of Jesus out of the darkness, and with the bowing of his head.

THE FAITHFUL WOMEN WHO REMAINED TRUE TO THE MEMORY OF JESUS

It seemed that Christ had failed them at the last. He had dreamed in vain. But their love for him was not destroyed. No; with the tender loyalty and the gentle reverence of womanly affection, they returned sorrowfully to their home to render the last service possible to the Teacher they had so often hailed as Master. They would embalm his dead body.

On Friday night they toiled at the preparation of precious ointment and sweet-smelling spices. For these women, we may be sure, the death on the Cross was the end. Life now could only contain memories of that Divine Presence, recollections of words and phrases he had uttered, the haunting sense of his personality: these things would be all that remained of the Master.

On the following day, Saturday, the Jewish Sabbath, these faithful women rested, according to the law. How that day must have passed in sacred memories! The hush of the house, the heat of the day, the idleness and repose which lengthened out the hours—can we not see that home?

They rose at daybreak on Sunday, the first day of the week, and, carrying their ointment and spices, hastened from the house through the streets of the still sleeping city towards the garden of Joseph of Arimathea.

THE WOMEN DRAW NEAR TO THE TOMB AND FIND A STRANGER THERE

They walked along quickly, their ointment and spices hidden beneath their cloaks, anxious to avoid both friends and enemies. In the secrecy of Joseph's garden they would perform the loving service of embalming the body of the Master, and then return unnoticed to their homes.

We can imagine the scents of the garden as they entered from the street, and saw the bushes and flowers beaded with dew, and heard the singing of birds from trees which threw soft shadows on the grass.

As they drew near the creeper-clad rock out of which the sepulchre was hewn, they saw that the stone was rolled away; perhaps they imagined that Joseph had risen already and made this preparation for them. They entered into the chilled sepulchre, and advanced through the shadows; but the body of Jesus was not there. They stood still, their eyes searching each other's faces.

What had happened? Who had taken the body away? With sudden terror they were about to leave the sepulchre when they beheld a young man on the right side clothed in a long white garment. The women were afraid. The young man said gently: "Be not affrighted. Ye seek Jesus of Nazareth, which was crucified? He is risen; he is not

THE SADDEST SIGHT OUR EARTH HAS SEEN

CALVARY—FROM THE PAINTING BY DOMENICO MORELLI

RAPHAEL'S FAMOUS PICTURE OF THE DESCENT FROM THE CROSS

here. Behold the place where they laid him. But go your way, tell his disciples and Peter that he goeth before you into Galilee. There shall ye see him, as he said unto you." The women, we are told, withdrew quickly, and fled from the sepulchre. They told no one what they had seen and heard.

THE STORY THE WOMEN TOLD TO THE AMAZED APOSTLES

At this point the original Gospel of St. Mark ends. The verses 9-20 of the last chapter, it is thought, were added by a later writer. We will therefore take leave of our guide, and follow the narrative of Luke.

With quickening steps, speaking in low and astonished voices among themselves, this little company of pious women left the garden and hastened through the streets to a house where they would find the apostles. When they entered, breathless and excited, the sorrowful disciples thought theirs was an idle tale.

But Peter, ever the impetuous member of the flock, rose suddenly, and, without a word, ran from the house towards the tomb. Stooping down, Luke tells us, the breathless Peter beheld the linen clothes and departed, wondering at what had come to pass.

The disciples of Jesus gathered themselves together and knew not what to think. As they were sitting at night, two of their number entered, dusty and way-worn, exclaiming:

The Lord is risen indeed!

THE STRANGER ON THE ROAD TO EMMAUS AND THE TALK BY THE WAY

They told how they had been walking from Jerusalem to Emmaus when they came upon a stranger who inquired why they walked so sadly and spoke so earnestly. One of them replied:

"Art thou only a stranger in Jerusalem, and hast not known the things which are come to pass there in these days?"

And the stranger said: "What things?"

They answered: "Concerning Jesus of Nazareth," and told the tragic story.

Then the stranger rebuked them and said: "Ought not Christ to have suffered these things?" and spoke of prophecies concerning the Messiah.

At Emmaus he would have left them, but they had derived hope from his words, and constrained him to stay with them, saying: "Abide with us, for it is toward evening, and the day is far spent."

Then he yielded and entered into the house with them; and as they sat at meat he took bread and blessed it, and gave it to them; and as they received it from his hands they saw that the stranger was Christ himself. But, as this recognition came, the vision faded from their sight, and they were left alone.

"Did not our heart burn within us while he talked with us by the way?" they exclaimed to each other; and immediately they rose up and hastened with all speed back to Jerusalem.

While the disciples listened to this strange narrative, the wonder and the hope increasing, suddenly they perceived that Jesus himself was there, standing in the midst of them!

"Peace be unto you," was the blessing breathed from those gentle lips.

But the disciples were affrighted.

"Why are ye troubled?" Jesus inquired of them. "Why do thoughts arise in your hearts?"

THE WALK THROUGH THE COUNTRYSIDE TO BETHANY

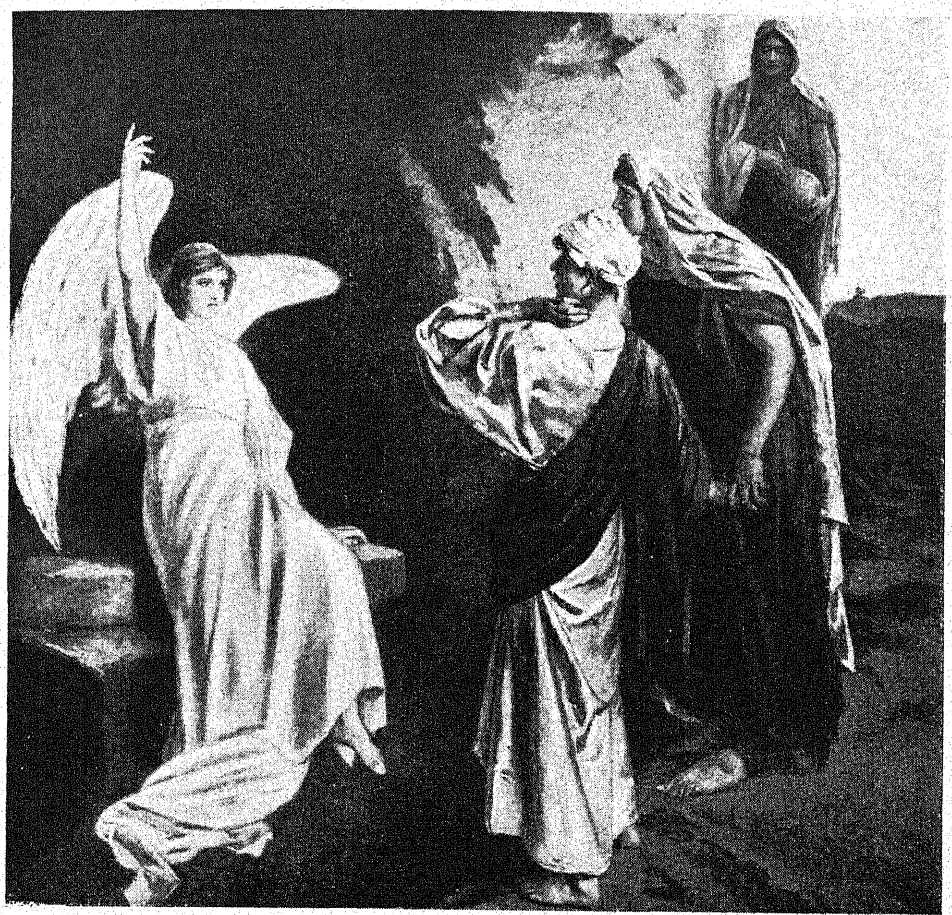
But they could not believe. Joy—too deep a joy for expression, a joy hitherto unknown in all the ages—prevented these men from believing.

Then he spoke to them of the visions of prophets and poets concerning the Christ that was to come, and finally said: "Thus it is written, and thus it behoved Christ to suffer, and to rise from the dead the third day; and that repentance and remission of sins should be preached in his name among all nations, beginning at Jerusalem. And ye are witnesses of these things. And behold I send the promise of my Father upon you; but tarry ye in the city of Jerusalem, until ye be endued with power from on high."

Then he led the wondering disciples from the room, and together they walked as far as Bethany, the village he had loved. There he blessed them, and as he bent above those kneeling figures, laying his hands upon their heads, and speaking words of peace, he was parted from them, and they saw him no more. It was as if they had seen him taken up to Heaven.

There, in the open countryside of Bethany, the first Christian service was held, and the disciples returned to Jerusalem, their hearts beating with joy, their spirits exalted with a new hope and courage that drove out fear.

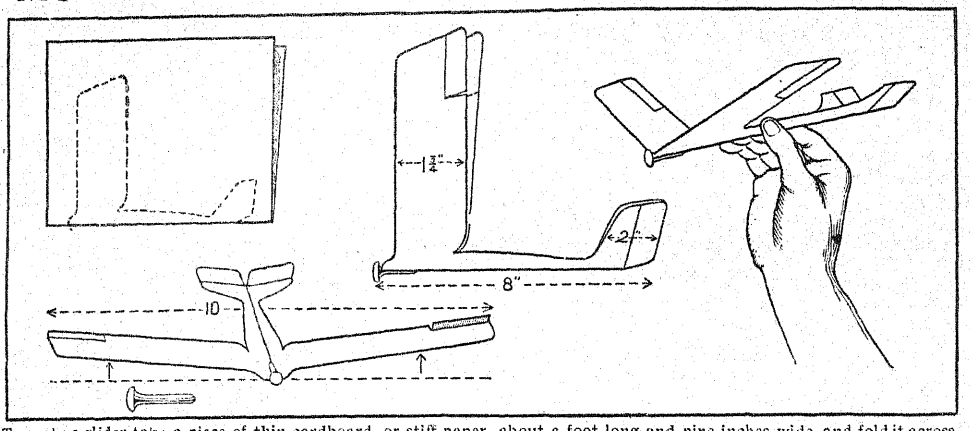
THE WOMEN AT THE EMPTY TOMB



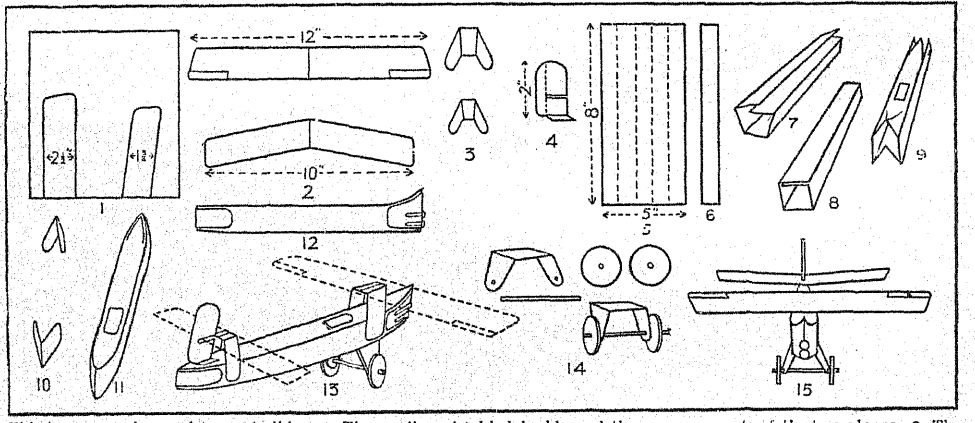
HE IS NOT HERE: HE IS RISEN—BY AXEL ENDER

THE SCENE AT THE EMPTY TOMB ON THE FIRST EASTER MORNING—BY SIR E. BURNE-JONES

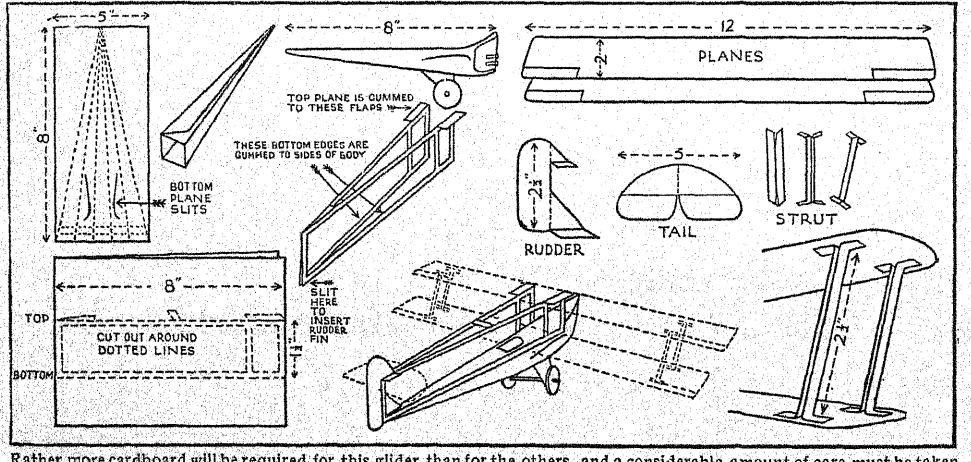
MODEL GLIDERS THAT A BOY CAN MAKE



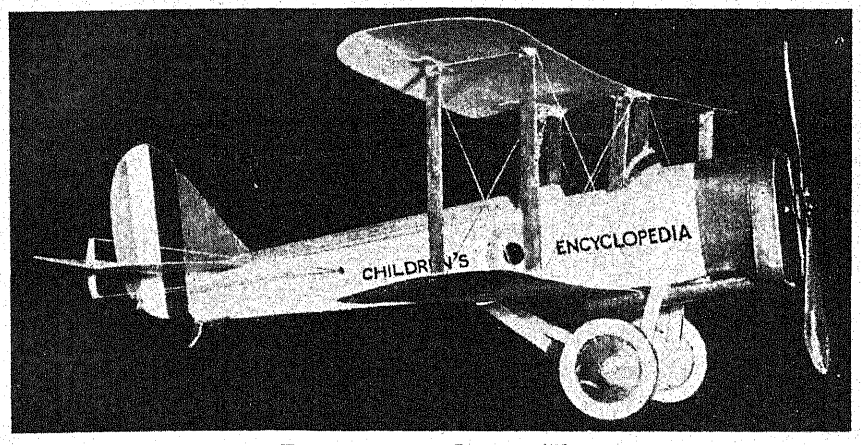
To make a glider take a piece of thin cardboard, or stiff paper, about a foot long and nine inches wide, and fold it across the middle, as shown in the first picture. Then draw the outline of half the glider, as indicated by the dotted line, and, keeping the card folded, cut out the shape. To complete the glider make little cuts, as indicated, for the ailerons, and fix a paper-fastener to the nose to act as a weight. Launch, as shown on the right, adjusting the glider as necessary.



This is a more advanced type of glider. 1. The cardboard folded double and the measurements of the two planes. 2. The planes opened out. 3. Plane supports. 4. Rudder, with flap for pasting to fuselage. 5. Cardboard for the fuselage. The dotted lines show shallow cuts for folding. 6. Cardboard, when folded. 7. Ready for pasting. 8. After pasting. 9. The ends and cockpit cut out. 10. Pieces of paper for closing the ends. 11. and 12. The finished fuselage. 13. Plane supports and rudder pasted in position. 14. Cardboard chassis with match for axle. 15. Complete glider with paper fasteners as weights.



Rather more cardboard will be required for this glider than for the others, and a considerable amount of care must be taken in cutting out the fuselage. The cardboard shown in the first diagram is only one thickness, but that shown beneath it is a folded sheet. To get the upward tilt on the front of the fuselage, push upward the lower and the upper side of the square end for a distance of about one inch. This biplane, if correctly made will prove a good glider.



MODEL GLIDERS & HOW TO MAKE THEM

OF all indoor pastimes one of the most fascinating is making and testing model gliders in actual flight.

The models illustrated on page 4828 will be found quite simple to make, and if the instructions are carefully followed excellent results should be obtained.

It would be as well, however, first to make the simple monoplane glider shown at the top of the page, and the knowledge gained will be of use when the time comes to make the other two models, which are rather more advanced and require more skill.

Before starting to make the glider it is advisable to read the chapter beginning on page 4577, to see why an aeroplane flies or a glider glides.

Having read this, it will be necessary to obtain a few sheets of good stiff paper, smooth if possible; a sheet or two of very thin cardboard, a pair of scissors, a penknife, and a bottle of gum, or, better still, a tube of some fish glue, which dries quicker, sticks tighter, and is not affected by damp.

The diagrams and instructions on page 4828 should be followed closely, and mistakes as well as successes will show how easy it is to design and construct really fascinating and instructive models with simple materials within everybody's reach

When the model is finished the greatest interest still lies ahead, for now the actual gliding begins. It will be advisable first of all to try a straight flight.

Hold the model as shown in the picture, and release it in a forward movement, at about the speed it is expected to travel This needs considerable practice. If perfectly balanced and weighted the model should maintain a straight course, slightly downward, till it touches the floor. It is necessary to have plenty of space indoors, and no draughts. If the glider does not keep a steady, slightly downward course, but goes forward in a series of nose-upward jerks, it is under-weighted, a fault soon rectified.

Models for out of doors must be made larger and entirely of thin cardboard, and must not be expected to give good results if flown indoors.

When necessary adjustments have been made and good results obtained, try a circular flight by adjusting the aileron, or wing tip, and the rudder Remember, however, that if the right aileron is down the rudder must be turned slightly to the right, and vice versa.

Being simply a glider, the tail-elevators hardly come into play, except that when permanently turned upward they will sometimes counteract any signs of nose-heaviness in the model. In the aeroplane they serve to put the nose upward for climbing, for, when turned upwards, the air pressure on these elevators pushes the tail down, and puts the machine on an upward slope.

With a little practice, and by making adjustments as necessary, good flights can be made, for each of the models shown has been

thoroughly tested. When all three models have been made, we may be tempted to make the more ambitious one shown on page 4829.

This model aeroplane is very much simpler to make than it appears. It is of thick, stiff paper, the planes being cut in the same way as those in the diagrams. The body is all in one piece, as are the bodies of the other models. The engine is of very thin cardboard covered with silver paper; the propeller is of paper (two thicknesses gummed), the blades being properly turned to cut the air, and varnished with ordinary spirit varnish; the wheels and fuselage are made of cardboard. The wind-screen is gelatine on a frame of paper.

This model is a perfect glider, responding to the rudder and ailerons; and the propeller revolving while in flight gives the glider a realistic appearance.

PROBLEMS WITH PENNIES

A good deal of amusement may be got out of a handful of coppers, and below we give three good problems with pennies.

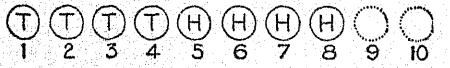
1. CHANGING SIDES

We have six coins, three heads on the left, then an empty space, then three tails on the right. A coin may move one space at a time

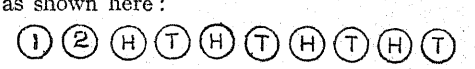
into the empty space next to it, or it may jump over the next coin into the empty space beyond that coin. But heads must always move to the right, and tails to the left; no coin is to be moved backwards. The puzzle is to get the heads into positions 4, 5, 6, and the tails into the positions 1, 2, 3.

2. HEADS AND TAILS

Again, arrange eight coins in a line, but this time put the first four tail uppermost, and the last four head uppermost. Imagine two empty spaces at the end of the line. Thus:

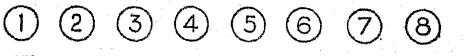


Now, the task is to move any pair of neighbouring coins into the empty spaces, 9, 10; then any pair of neighbouring coins into the empty spaces left by the first pair, and so on; but the final result is to get the coins in a line with heads and tails alternately upwards, as shown here:



3. PAIRING THE PENNIES

Place eight coins in a line on the table. The problem is, by moving one coin on to the top of another, to leave the coins arranged in four pairs. But when a coin is moved it must pass over two other coins, and no coin must be moved more than once.



Thus, suppose these are the eight coins. We may, if we like, put number 6 on to number 3, because it then moves over the coins 4 and 5. Next, we may put number 4 on to number 8, because it then moves over the coins 5 and 7. And so on, remembering that an empty space is not a coin, and that two coins lying one on the other must be counted as two.

The answers to these problems with pennies are given in Section 40 of Group 18.

SOLUTION OF THE PUZZLE OF THE LAUGHING SAILOR

Here are fourteen different ways in which the puzzle of the sailor's face on page 4710 can be done. The dots have been numbered, and the order in which we pass them is as follows:

I. 1. 12. 11. 10. 22. 23. 24. 25. 26. 27. 28. 49. 48. 47. 46. 45. 35. 36. 37. 38. 39. 40. 52. 50. 51.

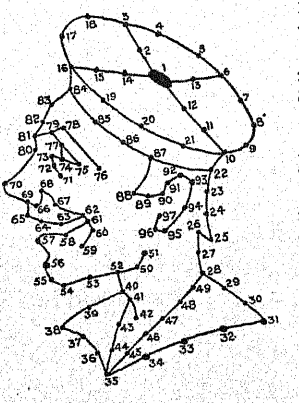
II. 1. 12. 11. 10. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 44. 43. 41. 40. 52. 50. 51.

III. 1. 14. 15. 16. 84. 83. 82. 81. 80. 70. 69. 66. 68. 67. 62. 61. 58. 57. 56. 55. 54. 53. 52. 50. 51.

IV. 1. 14. 15. 16. 84. 83. 82. 81. 80. 70. 69. 65. 64. 63. 62. 61. 58. 57. 56. 55. 54. 53. 52. 50. 51.

V. 1. 12. 11. 10. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42.

VI. 1. 14. 15. 16. 84. 85. 86. 87. 22. 23. 24. 25. 26. 27. 28. 49. 48. 47. 46. 45. 35. 44. 43. 41. 42.



VII. 1. 13. 6. 7. 8. 9. 10. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 44. 43. 41. 42.

VIII. 1. 14. 15. 16. 17. 18. 3. 4. 5. 6. 7. 8. 9. 10. 22. 87. 86. 85. 84. 83. 82. 81. 79. 78. 76.

IX. 1. 2. 3. 18. 17. 16. 19. 20. 21. 10. 22. 87. 86. 85. 84. 83. 82. 81. 79. 77. 75. 74. 73. 72. 71.

X. 1. 12. 11. 10. 9. 8. 7. 6. 5. 4. 3. 18. 17. 16. 84. 83. 82. 81. 79. 77. 75. 74. 73. 72. 71.

XI. 1. 13. 6. 7. 8. 9. 10. 21. 20. 19. 16. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97.

XII. 1. 13. 6. 5. 4. 3. 18. 17. 16. 19. 20. 21. 10. 22. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97.

XIII. 1. 13. 6. 7. 8. 9. 10. 22. 87. 86. 85. 84. 83. 82. 81. 80. 70 69. 66. 68 67. 62. 61. 60. 59.

XIV. 1. 13. 6. 7. 8. 9. 10. 21. 20. 19. 16. 84. 83. 82. 81. 80. 70. 69. 65. 64. 63. 62. 61. 60. 59.

AN AFTERNOON TEA-CLOTH

LET us see what we want to make the charming little drawn-thread work tea-cloth shown on this page.

We want a piece of linen, about a yard square—not too fine, as the finer it is the more difficult it will be to work—and a skein or two of Teneriffe cotton.

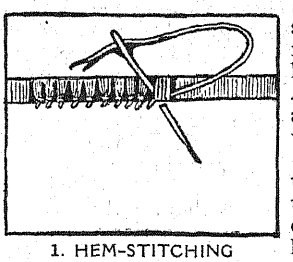
The first thing to do is to measure the hem. A fairly wide one is necessary, so we will allow six and a quarter inches. The quarter of an inch is for the little piece to turn in, and the six inches, doubled into two, will give us a hem of exactly three inches. When we have measured the hem we can mark the size of the hem by drawing one thread exactly where we shall sew the hem later on. To do this correctly we must carefully crease the material along the four sides, 6¼ inches within the edges; then in one of the corners where the crease lines cross we must snip one thread. Take hold of the end of the snipped thread and pull it gently to pucker up the material a little, and follow it along with a pin or a pencil until we reach the opposite creased corner, and here snip the other end of the thread, so that we can draw it right out. Draw out a single thread along each of the three other crease lines in exactly the same way. We want more than one thread for the hem, but in all drawn-thread work the insertions are worked first, and this is what we will now do.

We begin by removing, in one direction only, as many threads as necessary. This, of course, leaves nothing but loose strands, and these must be united.

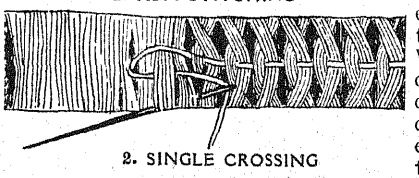
First of all, however, it is necessary to measure the space which must be left between the hem and where the insertion is to be. If it is desired we can work a fine feather-stitching between as shown in picture 5. This feather-stitching has been explained on page 4466.

Once the space has been decided upon, crease the material, then snip and draw a thread on each side. If we want our cloth to be perfectly square we must take the trouble to count our threads.

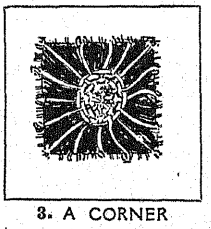
This one thread drawn on each side will form at the four corners where they meet a little pinprick of a hole. This is to be a little empty square which we will later transform into a pretty wheel. For the moment we will use it as a landmark, and, inserting the point of some sharp scissors, we cut through the linen to the width of an inch across the loose strands along the two sides of the corner. We must repeat this at each corner. Now, to prevent these cut threads becoming loose on the outer sides of the corner, we will immediately work a loose button-hole-stitch as shown on page 4420. This will save a considerable amount of trouble, and will keep the work neat and tidy.



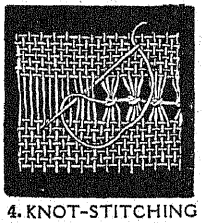
1. HEM-STITCHING



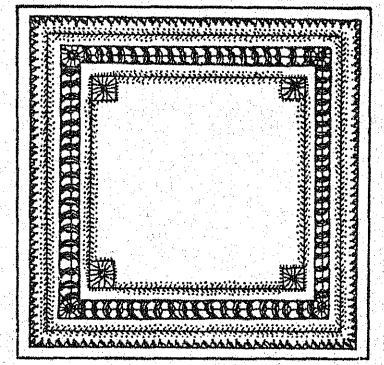
2. SINGLE CROSSING



3. A CORNER



4. KNOT-STITCHING



5. TEA-CLOTH TRIMMED BY DRAWN-THREAD WORK

Now comes the most fascinating part—the drawing of the threads. By fraying out the cut part which faces our button-holed edges, we shall have just enough hold on the threads to draw them out easily. We must not try to draw out several threads at once, for the weaving is done in threads which cross each other, and if we pull two at the same time they will press one on the other, so keeping each other in place. All the long threads being drawn out along the one-inch cuts will leave bands of loose upright threads, and on these threads we will set to work.

For a beginner few patterns are simpler than the one known as *single crossing*. For single crossing, reckon the strands—that is, each lot of upright threads to be taken up with the needle—in sets of five. Two sets are necessary for each pattern.

We must thread our needle with a long thread, and start in the middle of the button-holed edge at the extreme corner of the band of loose strands. Bring the needle down over two sets, back up under the lower and over the upper of these sets; then go down again behind the upper and lower sets, and out below them as in picture 2. The thread is now drawn up, and the two sets crossed. If we repeat all along our work will look like the insertion in picture 5.

A very useful stitch in the drawn-thread work is knot-stitching, so called because the thread is formed into a knot. This knot is a kind of chain-stitch, made by bringing the threaded needle out on the right side of the work at the button-holed edge, then bringing

the thread down across the loose strands of the material and up again to the right. This forms a loop which is held down at the bottom by the left thumb. Next insert the needle to the left of the thread and under the strands to be enclosed, then through the loop, thus forming a knot to be drawn tightly, by moving the thumb and pulling the working thread through. This knot-stitch is the one shown in picture 4.

When the insertion has been done all round, turn in the edge of the material, fold the hem down in the usual way with the quarter-inch inside, and tack it neatly all round, exactly along the line of the first drawn thread. The corners must be turned very carefully, otherwise they will feel thick. The open ends will have to be sewn over in little fine over-stitches.

Now, we cannot work a hem-stitch without more threads being drawn, so we will again use the point of the sharp scissors and cut as many threads on each side as will be necessary to make a suitable hem—about four or five threads will be enough.

Hem-stitching is shown in picture 1. This is how the stitch is worked. Thread a needle with a long piece of cotton, and fasten it to the upper edge of the loose strands, at the right-hand end of them, by taking a couple of stitches, and bring the needle out three threads above the edge. Insert the needle into the loose strands, exactly under the place where it last came out, and take four strands upon it from right to left. Draw out the needle ; slip it under the left of the four strands and bring it out again three threads above the edge.

But what about the corners ? When bands of openwork are carried along two sides of a piece of work, a space or " open square " is formed in the corner where the lines of work meet. In ordinary hem-stitching this space is so small that it may be passed over, but where more strands are drawn a filling is necessary, and this usually takes the form of some such wheel, as shown in picture 3, though this one is worked in the material at the end of feather-stitching, and not at the end of openwork.

When it is worked at the ends of openwork the foundation strands, or spokes of these, are the continuations of the working threads that have been used along the single crossing insertion. Two or more threads are then put right across from corner to corner, and the wheel is worked from the centre. The needle has to be taken alternately over and under one of these spokes, formed by the crossing threads, close round the centre until this has been surrounded four or five times. The needle is linked through the last round of the thread, between the spokes, and the thread is taken across to the vacant corner, where it is fastened off.

A CLEVER AND AMUSING WORD GAME

THE game of doublets is an interesting word game that gives plenty of scope for skill and ingenuity, and enables us to exercise our memories and to make good use of our knowledge of words. Two words are chosen, each containing the same number of letters, and the words should be either of quite opposite meaning, as wrong and right, black and white, good and evil, rise and fall, and so on, or they should stand for things quite different from one another, as wood and iron.

The game is to change one word into the other by changing only one letter at a time, and making a chain of words between the doublets. Two or three examples will make the method clear.

black	tame	beef	cat	black
slack	time	been	cot	block
stack	tile	bean	dot	clock
stalk	wile	beak	dog	click
stale	wild	peak		chick
shale		perk	more	chink
whale	shoe	pork	lore	chine
while	shot		lose	whine
white	soot		loss	white
	boot		less	

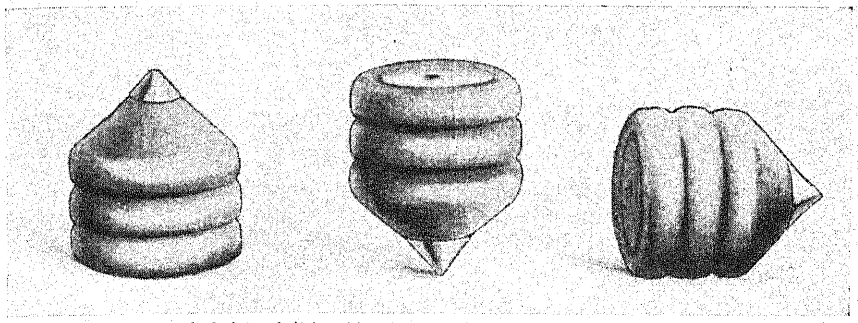
It will be seen by these examples that only one letter is altered in each word to make the next, and every change makes an actual dictionary word. It is not allowable to make a change of a letter that will produce something that is not a real word.

Then the transformation from the one word to the other must be made with as few changes as possible. In changing from black to white we might have proceeded like this : black, block, clock, click, chick, thick, think, thine, whine, white ; but here we make eight words in between, and not more than seven are needed. Two ways of changing black into white are given on this page

It must, of course, be understood that in changing one letter to make a new word in the chain, the substituted letter must occupy exactly the same position in the new word that the discarded letter did in the old word.

Doublets makes an excellent game where a number of friends are gathered round a table with paper and pencils. A pair of words are decided upon, each player writes one at the top of a piece of paper and the other at the bottom, a time limit is fixed, and ten points are given to the one who has made the change with the fewest links.

Other competitors who have used more words in their chain take marks, but for every extra word used they take off one mark. Thus, in changing cat to dog, as shown above, the winner who did it with only two words would get ten marks. Another competitor might do it with five new words. He would receive seven marks—that is, ten, less three, for the three extra words used. The player who first gets fifty, or a hundred, or any number decided on wins the game.



When a thing is properly balanced, it is said to be in equilibrium. There are three kinds of equilibrium, as shown by these tops. That of the first is stable, because, if slightly tilted, the top returns to its original position; that of the second is unstable, because a slight push will send it over; and that of the third is neutral, because, if pushed, it moves, and then rests in a similar position in relation to the ground.

HOW THINGS ARE MEASURED

ALL our ideas of motion are, as we can understand, relative—that is, something moves *compared* with something else. We cannot say in what direction, or at what speed anything is moving, or even that it is moving at all, except as compared with something else.

It has often been declared that science is measurement, and, though this is far from being the whole truth, yet it is quite true that everywhere it is the business of science to measure, and that the value of our work largely depends on whether we have measured correctly or not.

In this important question of motion, which comes into everything, there are, to begin with, two great kinds of measurement we must employ. There is nothing difficult in understanding this, because we make a measurement of this kind when we say a runner can run a hundred yards in ten seconds, or that it took us an hour to walk three miles.

When we say things like this we are measuring *time* and *space*. In every kind of motion we can imagine, time and space are concerned. There is something else also concerned, and that is *mass*, but we must begin with time and space.

First of all we must have some way of measuring time, and the most convenient interval is one complete night and day.

Though the periods of light and darkness are not constant, yet the spinning of the Earth *is* constant. It is getting slightly slower in the course of ages, because the tides act as a brake on it; but this is so slight that, for all our purposes, the length of the day is a perfectly fixed and constant thing. We divide this up into 24 parts, which we call hours, and these into minutes and seconds. A second is only a sixtieth part of a sixtieth part of a twenty-fourth part of the time the Earth takes to spin round once.

It is one of the most fortunate of all possible things that the whole civilised world is agreed as to the second. We call it a unit, as if time could be cut up into little pieces, each of which is a *one*, or a *unit* of time. All over the world the unit of time is the same. If anyone proposed that we should have a unit of time rather longer or shorter than a second, or that the units should be different in all countries, everyone would be horrified. Once men are agreed about anything, they can see plainly enough what a lot of unnecessary trouble it causes when they do not agree. If we had the sense to agree on units of weight and space, as we do on units of time, much trouble and labour would be saved in very many directions.

First, as to space. If we think of a solid box, we shall understand that it is possible to measure space in three directions, or, in the case of a flat thing like a sheet of paper, we can measure in two directions—though, of course, the third direction really comes in, for the paper has a certain thickness. If we can imagine a line that has no width, then there is only one direction in which to measure.

HOW A KING'S ARM BECAME A MEASURE FOR A NATION

But, whatever we are measuring, all we need is one, two, or three measurements of distance, and so we want a unit of length, or distance—something to correspond to the second, the unit of time. In this country our unit is the Yard, which we divide up into three Feet, each divided into twelve Inches. The length of the yard is supposed to have been based on the length of the arm of one of our early kings. There is no particular reason why it should be as long as it is, for it is not based on any natural distance, as the second is based on a natural period of time—the time of the Earth's rotation. Nor is there any reason why the yard should be divided up as it is into feet and inches, and there is still less reason why 1760 yards should make a mile. To tell the truth, all our English measurements of distance, like our measurements of weight, and our coinage arrangements, are needlessly complicated. They make endless trouble, and the time will certainly come when they will be all swept away.

For ease and quickness of reckoning all our measurements should be in tens. Then, in order to reckon, we should only have to use the very simple method which we learn when we study decimals.

THE MEASURE THAT IS USED ALL OVER THE WORLD

All over the civilised world men of science have agreed on a certain kind of measurement called the Metric System (from the word *metre*, meaning measure, which is its unit of length).

In this system all the other measurements are based on the metre in tens. The length of the metre is slightly over thirty-nine and a third of our inches, so it is rather more than three inches longer than a yard. To indicate fractions of a metre, there are used, all over the world, terms derived from Latin. For instance, the tenth part of a metre is called a *decimetre*, the hundredth part is called a *centimetre*, and the thousandth part a *millimetre*.

This, however, only begins to express the simplicity of the metric system. The great point about it is that all the other kinds of measurement are calculated from the metre. For instance, our pints and quarts have nothing to do with our yards; but in the metric system all the measurements of bulk are based on the length of the metre, and then the measurement of weight, or rather of mass, is based on the weight or mass of a certain bulk, the size of which is derived from the metre. The consequence is that weight, and volume, and length, can all be understood in terms of each other in a moment, and reckoning becomes easy. Thus, if an English man of science were now compelled, instead of using the French method, to do all his reckoning in inches, and grains, and pints, and so on, he would get about as much work done in a week as he now does in a day.

Many sensible people want us to adopt the metric system generally in England, as it is already adopted for science everywhere; and some of us may live to see the change made.

THE UNIT OF MASS WHICH THE MEN OF SCIENCE USE

Now we have the unit of time, which is the second, and the unit of length, which is the metre; but when anything moves there is another question besides time and space, and that is the amount of stuff that happens to be moving.

In this country we reckon in grains, ounces, and pounds. These have no relation whatever to yards, or to inches, or to pints. But men of science do not reckon in these ways. They choose a unit of mass that is based on something, in a simple, useful relation to our other measurements. They choose water because it is so familiar and important. Now, we know that water is at its densest, or *most shrunken*, when its temperature is four degrees above zero on what is called the centigrade scale; so men of science take, as their unit of mass, the mass of one cubic Centimetre of pure water at the temperature of 4°C. This unit of mass is known as a gramme. It is roughly equal to about fifteen of our grains. As in the case of the metre, we can divide the gramme into tens, and hundreds, and thousands, or multiply it if necessary.

In the same way, men of science use the scale of temperature called centigrade, or hundred steps, based sensibly on tens. On this scale 0, standing for nothing, is the freezing-point of water, and 100 is the boiling-point of water. This scale is used by men of science all over the world, and for ordinary purposes, too, in many parts of the world. But in Britain ordinary people still stick to the Fahrenheit scale, though there is not even the excuse that it is an English invention. On this scale, the freezing-point of water is 32, and the boiling-point 212. This is all we need say about it here, as it is never used in science.

We have sometimes used the word weight and sometimes mass. Generally, weight is sufficient for our purposes, because weight and mass practically come to the same thing; but in reality weight and mass are quite different, weight being a consequence of gravitation, while mass is the actual amount of stuff in a thing.

WHERE A POUND DOES NOT WEIGH A POUND

If gravitation ceased there would be no more weight, but the mass of everything would be unchanged. A pound of lead contains a certain amount of lead, wherever it is; but it really weighs slightly more than a pound if you throw it into a ditch, and weighs a trifle less than a pound if you hold it up in your hand, because weight depends on gravity, and gravity depends on its distance from the centre of the Earth. On the Moon the lead would weigh far less, on Jupiter far more, and on the Sun still more; but the mass of the lead would remain exactly the same all the time.

Now that we have our units of time and space and mass we can begin to put them together, and then they become very interesting. When we reckon time and space together, we get the idea of speed—how much time occupied in covering certain distances. In science, it is common to take together the idea of speed and the idea of direction, and the word that is used is *velocity*.

Velocity means more than speed, for when in science we say that a thing has the same velocity as another thing we mean that it is moving at the same speed, and also that it is moving in the same direction. Here, however, we need only think of speed, and need not trouble ourselves about velocity. Sometimes in Nature we find that speeds regularly increase, or regularly diminish. This happens, for instance, when a body falls by the influence of gravity, or when it is thrown up, and is slowed down by the same influence.

WHY IT IS DANGEROUS TO FALL FROM A GREAT HEIGHT

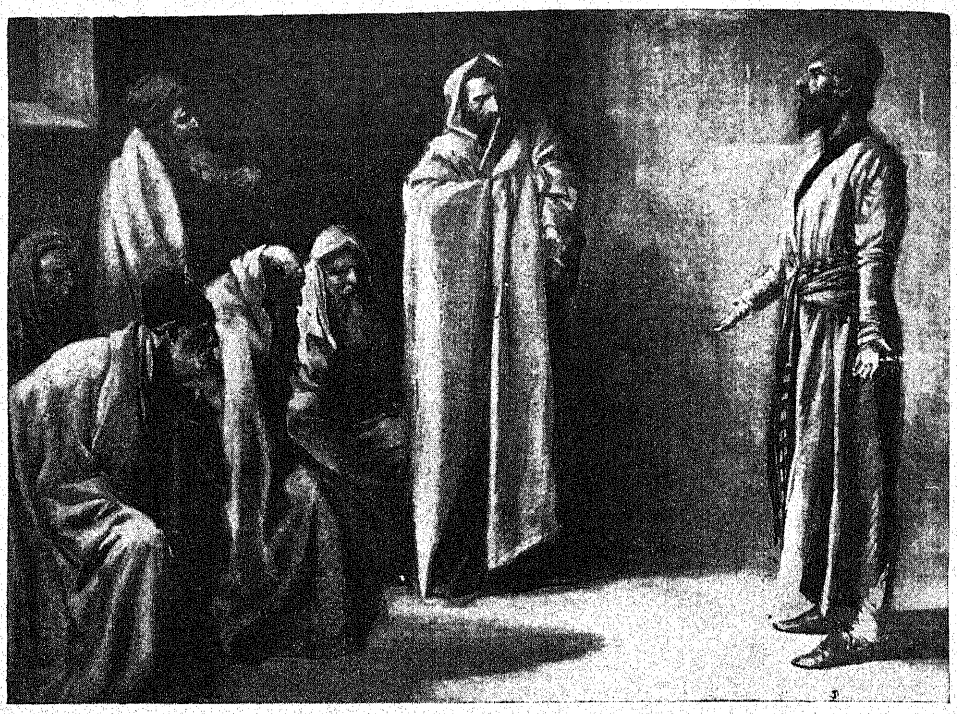
It has been proved that whenever anything falls to the Earth under the influence of gravity, in each second of time it passes through 32 more feet of space than it did in the second before. Thus, in the first second it falls 16 feet, in the next second 48 feet, in the third second 80 feet. This, of course, explains to us why it is more serious to fall from a great distance than from a small distance. If gravity simply pulled a body at a certain rate, which did not change, it would hurt us no more to jump from a high tower than to jump off a chair; but what happens is that the speed of a falling body constantly increases, so that, the farther we fall, the greater the force with which we strike the ground.

Of course, when we state this about the speed of motion under gravity, we assume that nothing interferes with the action of gravity. But we know that gravity is not the only force in the world. For instance, take the case of a raindrop. Suppose a raindrop formed in the sky had to drop through empty space to the Earth. In the first second it would cover not 32 feet, but 16, because, at starting, its speed would be nothing, and only at the end of the first second would the speed be 32 feet per second. So the distance covered in that first second would be one-half of 32 feet; in the second it would cover 48, and so on. If we knew the height from which it began to fall we should know its speed when it reached the Earth.

HOW THE EARTH'S PULL AFFECTS THE EQUILIBRIUM OF BODIES

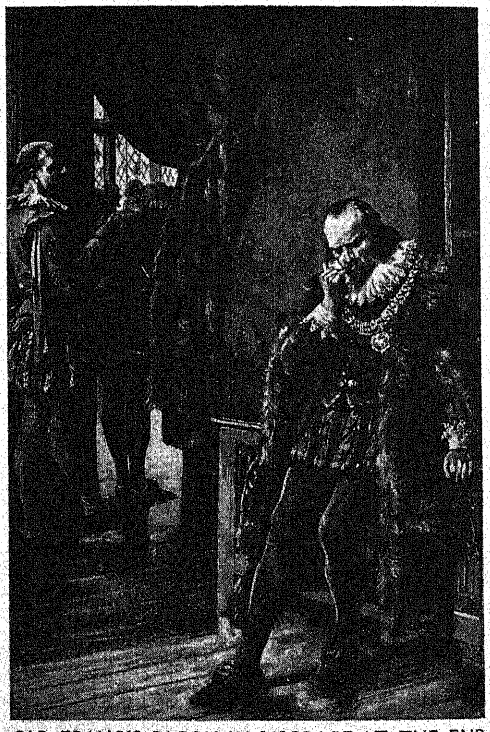
When the Earth is pulling falling bodies towards it what we notice is the speed at which the bodies fall. But the Earth is also pulling any body which stands on it, and the pull acts through the centre of the body's weight. If this centre of weight is above the centre of the figure of the body, then it will be seen that the body will tend to fall over. The balance, known as equilibrium, is easily upset. If the gravity centre is below the other centre the body will not be upset. If they coincide the equilibrium is said to be neutral.

TWO NAMES THAT WILL LIVE FOR EVER

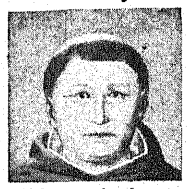


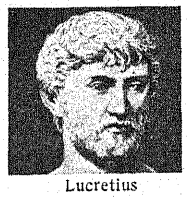
SPINOZA REJECTS THE OFFER OF A BRIBE

YOUNG FRANCIS BACON AS A FAVOURITE OF QUEEN ELIZABETH

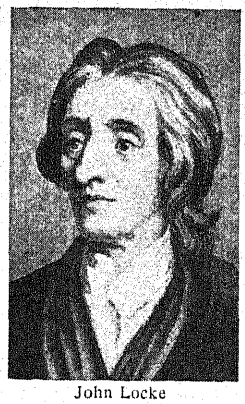


OLD FRANCIS BACON IN DISGRACE AT THE END OF HIS CAREER

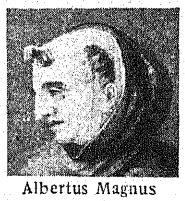

Thomas Aquinas


Lucretius

George Berkeley


John Locke

Thomas Hobbes


Albertus Magnus

THE OLD PHILOSOPHERS

REAL history is the history of thought. We easily tire of reading what kings have done. But the real history of the human race is delightful. It is the chronicle of what men have thought concerning the world and themselves. Sometimes it is a chronicle which wakes our laughter, sometimes our contempt, at other times our rage; yet we are carried along by the interest of the tale, wondering how it will end.

This history takes us back to the first man who turned away from the chase, laid aside his sling and pebble, and looked up to the stars with the questions in his soul: *Whence do I come? Whither do I go?* We follow the movements of the human brain from the time when men prostrated themselves in worship before the Sun—having made the great discovery that this glowing mass of fire and flame was the source of life—up to the day when other men weighed and measured this self-same Sun, calculated its age, and searched it for metals. Early in recorded history we meet with Socrates, who might really be called the father of all the philosophers who have lived since. We read about him and about Plato and Aristotle elsewhere.

These three immortal Greeks were great indeed, but the universe is greater still. We acknowledge Plato as the master mind of antiquity, but we turn the page and follow the work of the modern men. Plato has given us the motto for existence. He felt, as few men have felt, the haunting sense of divinity and mystery in the world; but, while he reverently bowed before the immense power of the universe, he believed and taught the great truth that *things are knowable.*

The history we follow has this trumpet note of the soul ever in advance of the marching host—*Things are knowable.* Man is destined to discover the answer to the riddle, to see the truth of existence. Great is the change when we turn from men like Socrates and Plato and Aristotle, who taught courageously only what they *thought* must be true—the splendid guessers of philosophy—to the moderns, who seem afraid, amid definite knowledge, to say exactly what it is they believe.

There was a disciple of Socrates, named Euclid, who was so intent on learning that he would go at night from Megara, where he lived, to Athens, the home of Socrates. He was a great philosopher and thinker, and founded a sect. This was not Euclid the mathematician, who also was a great thinker, but, instead of arguing about guesses at truth, argued only on facts. He used to state his

facts, and then hammer his adversary with "*Therefore, therefore, therefore,*" jumping from one conclusion to another, "which manner of reasoning," says an old writer, "not allowing a man time to take breath, is of all the most forcible!"

The Greeks were great speculators and thinkers about the origin of things. They took a delight in studying knowledge, and forming it into various systems, in the hope of explaining the world as we see it. When, however, Rome took the lead in the world this speculative thought declined, for the Romans were a practical people more intent on doing than on philosophising. Nevertheless Rome is not devoid of speculative thinkers, as one illustration will show.

When the ancient world had reached the period of about a hundred years before Christ it was in a state of sad confusion. Its religion of a multitude of gods, as taught in Greece and Rome, did not satisfy men at all. Neither did their knowledge of things satisfy them. Honest men knew that superstition reigned everywhere; but few dared to say so. One man, however, was bold enough to think and speak for himself. It was Lucretius, one of the greatest of the Roman poets.

A MAN OF OLD ROME AND HIS THOUGHTS ABOUT THE ATOM

Lucretius wrote only one poem that has reached us. Its subject was "the whole nature of things"—everything that is in the material universe and in the worlds of thought, imagination, and religion.

If it is a great thing to be thinking the thoughts that will appeal to the world two thousand years later, then Lucretius was one of the greatest men of the ancient world. He thought before Christ something of what men of science are thinking now. He believed the world is made up of infinitely small atoms, which move, for various purposes, according to fixed laws. The superstitions of his period he would have swept clear away. He was naturally disbelieved and dispraised by his own generation, and we cannot believe much that was said about him. But we have his poem as it was left unfinished, and it shows how he nobly and boldly foresaw truths 2000 years before they were generally recognised, how he rejected the foolish gods of his day, and how he demanded a God such as men now see God must be.

At the beginning of the thirteenth century the Christian Church badly needed knowledge that would explain the natural world around men, in such a way as to satisfy inquiring minds. The man who brought to the Church that kind of knowledge was a south German Dominican bishop, Albert, Count of Bollstadt, who came to be known as Albertus Magnus, or "Albert the Great."

THE MAN WHO GAVE TO THE WORLD THE KNOWLEDGE OF ARISTOTLE

When he was born is not exactly known, but he died in 1280, an old man. He had travelled widely wherever he could find learning, and had taught wherever he went. But during his later years he settled at Cologne and taught there, being held in great honour, and known as the Universal Doctor.

Albertus found the knowledge he thought the world needed in the works of Aristotle, the Greek philosopher, which had been neglected during the Dark Ages. Aristotle's writings were translated, and Albertus adopted Aristotle's explanations of the things we see in the world, making a few changes of his own. In short, he presented Aristotle's system of knowledge afresh to the Church.

For the next three hundred years the Church adopted Aristotle's outline of universal knowledge, and men were even persecuted for not believing what Aristotle had taught. Albertus Magnus had sufficient influence to weld Aristotle's science and the medieval Christian theology, into a system which pacified thought for centuries.

We know now that knowledge, whether in science, philosophy, or theology, grows, and that Aristotle, though a fine thinker, was very incomplete, and often entirely wrong; but Albertus Magnus was great enough so to use Aristotle's imperfect knowledge that he quieted men's minds, and made them feel they had reached a complete system of truth, both in science and religion.

THE DUNCE WHO GREW UP TO BE THE GREATEST THINKER OF HIS AGE

Almost the greatest thinker at the close of this period was Thomas Aquinas, born early in the thirteenth century of a noble Italian family, and said to be ranked as a dunce at school. He became a monk, and as a preacher, a writer, and a missionary, he did marvellous work for the Roman Church. But with all his wonderful gifts it has been truly said of him that Faith in his hands became belief in a proposition,

not in a personal Christ; and that Revelation meant for him a new knowledge, not a new life.

Aquinas was a master of words, a juggler with language. In the midst of superstition, ignorance, and folly, he bent his brain to raise theology to be the master science of Europe.

There was to be only one State—the Holy Roman Empire; and only one knowledge—the knowledge of theology.

FRANCIS BACON, THE FATHER OF THE WORLD'S NEW THINKING

It was a great ideal. But men cannot be restrained from seeking truth; and the careful dam built by Thomas Aquinas was burst asunder, while the river of progress flowed on to the chant of Plato, who said "things are knowable." Thomas Aquinas had a deep and curious brain, not a comprehensive mind, like Plato or Shakespeare.

To an Englishman we may look with pride for the first voice uttering the commonsense and practical view of truth-seeking since the long silence of antiquity.

Francis Bacon was the father of a new science, almost the creator of Europe's new birth. He started with the sublime idea of making truth serve the happiness and dignity of the human race. He saw no value in a science which contributed nothing to humanity.

Science has one aim, "to endow the condition and life of man with new powers or works . . . to extend more widely the limits of the power and greatness of man." He asked, finely, of the dreamers and theologians, dazed with words that no man could understand: "Is truth ever barren?" It was Francis Bacon who rested his great mind on the saying that *Knowledge is Power*.

ONE OF THE GREATEST MEN WHO EVER TAUGHT TRUTH TO MANKIND

Many great books by little men tell us that Bacon's ideas are full of grave errors; but let us not be deceived. Bacon himself used to quote the good saying that "critics are like brushers of noblemen's clothes." If these critics make a little dust to fly from Bacon's coat, be sure that they themselves wear shoddy. Bacon, in spite of a great blot on his name, will remain to the end of history one of the greatest men who ever sought to bring the puzzles of life home to "men's business and bosoms." Plato thought it a shame for science to stoop to the rabble, to be useful, to invent machines and make all kinds of comforts for the multitude; Bacon thought it a glory.

It is admitted by men of all nations that Bacon was one of the world's master minds, but his character remains an unguessed riddle. No one thought more seriously about human character, as we may see in his Essays, but in his own character he did not illustrate the wisdom of his thoughts. He has been summed up in a famous line as "the wisest, brightest, meanest of mankind," and there is a good deal of reason for that terrible description.

His father, Sir Nicholas Bacon, was a clever judge, and his mother was learned enough to attend to his education. As a boy he was at home in the Court of Queen Elizabeth, and raised great expectations by his intelligence.

At thirteen he went to Cambridge, and quickly absorbed such learning as the University had to offer. But youth though he was (for he left Cambridge when he was still in his teens), he did not agree with the objects of study there.

BACON'S IDEA OF THE KNOWLEDGE THAT REALLY HELPS MEN FORWARD

What did it all amount to, he asked, but learning the languages of ancient Greece and Rome, and arguing about questions that had been teasing men's minds ever since, without really helping the human race? He saw that it is a knowledge of *things*, or of what we call Science, that really helps men; and so he made up his mind that he would study realities, and not trouble himself with empty discussions.

But that great purpose of Bacon's life, though it was always before him, was only pursued fitfully, and his scheme of knowledge tending to practical uses remained only a fragment, though a colossal fragment.

The reason is simple. Bacon's father died and left the young student in poverty when he was only eighteen. His influential friends did nothing to help him. His brilliant abilities awoke keen jealousies. He had to tackle life on his own account and make his way as best he could through poverty, and hampered by fine tastes.

He followed in his father's steps and chose the way of the law. Now, the law is a slippery path for a clever man who, above all things, wants money to enable him to pursue a big life-purpose; and Bacon's feet slipped on this path. Nay,

he actually fell, and the cause of it was that he, on the way as he believed to lasting fame, was held back by the need of money, and went on to take wrong ways of getting it.

Though he was a fine orator, Bacon's rise as a pleading lawyer was slow, and poverty dogged his steps. Even when he had made himself a name in the law courts by his great skill in argument, and in society by the first publication of his Essays, he was put in prison for debt. And later, when he had become a judge, and had reached the highest of all legal positions as Lord Chancellor, he was accused of taking bribes when he was administering justice, and was obliged to admit the truth of the charge, and to plead for mercy.

The end of it was that he was deposed from his high office, fined £40,000, declared unfit to sit again in Parliament or hold any office in the State, and was sent to the Tower to be a prisoner during the king's pleasure. What a fall was there! It is true the fine was remitted, and King James the First quickly ordered his release, and presently pardoned him. But Bacon was already a broken man with a soiled reputation.

THE TERRIBLE STAIN ON THE FAME OF THE WISEST OF MEN

But there was more to be said against Bacon than his taking of bribes while sitting in the seat of justice. His personal attitude towards the Earl of Essex, who had been his best friend, advancing his fortunes when he most needed help, was ungenerous, to say the least. The Earl was a headstrong man, and Bacon gave him good advice which he did not take. Essex was finally tried and executed for rebellion, and it was Bacon who legally prosecuted him, and, after his death, wrote a pamphlet to deepen his guilt and blacken his memory. Bacon was legally right, but most of us will think he ought never to have taken such a part against one who had been his best friend.

And it is to be said, also, that this man with a great mind was the last judge in England to use torture against a poor prisoner, though he knew torture was illegal, and though he must have felt that the prisoner, a poor clergyman, was innocent. We see now why he was called in after-times "the greatest, brightest, *meanest* of mankind."

After his downfall Bacon went on with his studies and writings, trying to fulfil the true purpose of his life. He did enough in his remaining years to prove his greatness, and awaken in himself the hope of fame, for in his will he pathetically said, "For my name and memory I leave it to men's charitable speeches, and to foreign nations, and the next ages."

Bacon did not work down from a theory, finding facts to suit it; he worked up from facts, won by observation and experiment, to find laws of the universe which are true, and may be usefully understood. He saw that truth is not derived from authority, but from the proofs of experience, and he did not hesitate to denounce what he calls "the idols of the mind," which men unthinkingly worship. He called on them to investigate everything. His own work remained very incomplete, but he, as he said, "rang the bell which called the wits together," and the wits have been working hard to find real knowledge ever since.

HOW BACON MADE LEARNING A SERVANT AND NOT A MASTER

It was this great Englishman, this Lord Chancellor, who once stood as the first man in Europe, and brought learned foreigners to England to converse with him, who gave to learning that turn which has made it the servant and not the master of man.

Another truth-seeker whose character fills us with admiration was Baruch Spinoza, born in Amsterdam in 1632. There had been a terrible persecution of the Jews in Portugal and Spain, and the parents of Spinoza had fled for their lives, with others of their race, to Holland. The little boy grew up among the Jews in Holland, and showed from the first a wonderful keenness for knowledge; but as his intellect ripened he felt that the religion of the synagogue did not satisfy his mind. He was extremely fond of science. He felt that Nature told him better than did the Talmud what was the nature of God.

THE MAN WHOSE IDEAS WERE WORTH MORE TO HIM THAN GOLD

Two men came to him, and, pretending to be his friends, got him to talk about his ideas. Then they repeated this conversation to the chiefs of the Jewish community, and Spinoza was summoned to appear before them. He was offered 1000 florins a year if he would "outwardly conform and appear now and then in the synagogue." Spinoza refused. He was then publicly excommunicated from the commonwealth of Israel amid jeers and gibes.

He went away and earned his bread by grinding lenses for optical instruments. While he worked he thought. For more than five years his mind set itself to find out some clear knowledge concerning the riddle of existence. He could not follow the Jewish religion; he could not believe in the Christian religion as taught by the Church; and he could not find satisfaction in the ideas of Descartes.

HOW SPINOZA TRIED TO SOLVE THE RIDDLE OF THE UNIVERSE

Light came to him from—mathematics! Yes, from mathematics Spinoza learned how to look on man and life. There is a law of figures and a law of geometry. We know that two and two make four, and that a straight line is not a circle. People may wish to make two and two equal five, and to convert a straight line into a circle; but, whatever they may wish, the facts will remain. Nothing can alter them. Two apples added to two apples make four: that is the law.

Spinoza was immensely struck by this *law* of mathematics, and he became a student of humanity in the same spirit. That he might study human life as he studied figures, he determined, he tells us, "not to laugh or weep over the actions of men, but simply to understand them, and to contemplate their affections and passions, such as love, hate, anger, envy, arrogance, pity, and all other disturbances of the soul, not as vices of human nature, but as properties belonging to it in the same way as heat, cold, storm, and thunder belong to the nature of the atmosphere. For these, though troublesome, are yet necessary, and have certain causes through which we may come to understand them, and thus, by contemplating them in their truth, gain for our minds as much joy as by the knowledge of things that are pleasing to the senses."

THE SIMPLE WAY TO HAPPINESS AS SPINOZA TAUGHT IT

He teaches us to forget the importance of our own little life, and to regard the whole race. The whole human race is one with the whole supreme mystery of Eternity and Infinity. The universe must be infinite and eternal; the human race is placed in the midst of this eternity and infinity.

"Acquaint yourself with God," says Spinoza, "and be at peace." He taught that a man is happy or unhappy according as he centres his love. If we centre our love on finite, petty, trivial, and fading things, we shall be unhappy; only love centred on an object infinite and eternal "feeds the soul with a changeless and unmingled joy." He counsels men to seek God with their reason, and only to be moved by the passion for good—this he calls "the intellectual love of God."

No man among philosophers has felt so ardently and passionately the glory, the power, the majesty, and the goodness of our infinite and eternal God.

Assaulted and harried on all sides by his enemies, and consumed inwardly by the burning disease of tuberculosis, Spinoza went from lodging to lodging, unable to publish his important opinions for fear of the Church. As his parents had been persecuted and driven from their land by the priests, so this son of Truth, this worshipper of God, this great enemy of falsehood, was driven into silence and maligned as an infidel by the same tyrannous usurpers of Christ's name.

The appearance of this famous and noble philosopher is thus described to us by his biographer:

> He was of a middle size, and had good features in his face, the skin somewhat dark, black curled hair, and the long eyebrows of the same colour, so that one might easily know from his looks that he was descended from the Portuguese Jews.

DESCARTES, WHO KILLED HIMSELF BY RISING EARLY TO TEACH A QUEEN

At Spinoza's death it was found that his property sufficed to pay a few outstanding debts, and no more. He left a few books, engravings, and lenses. He had lived as sparely as a monk, and had spent his days in seeking the truth of God's laws.

A great impulse was given to life by the French philosopher, Descartes (pronounced Day-cart), who made important contributions to science, but was so persecuted by the Church that he had to flee from France. The Queen of Sweden received him into her palace; but as this good lady, in her passionate ardour for truth, took her "lessons" with Descartes at five o'clock in the morning, the philosopher soon broke down under the strain, and died at the age of 54. But his work was done. Europe since his day has never once been checked on the road of free and bold seeking after truth. It was Descartes in France and Bacon in England who roused humanity from its long torpor, its profitless dreaming.

The great Bacon sometimes had for his secretary a young man of huge stature named Thomas Hobbes, of Malmesbury. "His Lordship would often say that he liked better Mr. Hobbes taking his thoughts than any of the others, because he understood what he wrote."

Thomas Hobbes was the son of a poor parson, and after five years at Oxford he became tutor and secretary to William Cavendish, afterwards Earl of Devonshire. He bought himself books to read in the lobby while his lordship was making his visits; moreover, as we are told, my lord used to send him "up and down to borrow money, and to get gentlemen to be bound for him, being ashamed to speak himself."

But, although his position was humble enough, Thomas Hobbes made friends with many able and learned men, including Ben Jonson. He was soon able to publish a book, and almost at once he became famous. His ruling idea was the necessity for one man at the head of a State. He feared talkers. He feared the mob. He feared all societies which were not absolutely under the government of the king. He placed the Church beneath the Crown. This roused the fury of the clergy, who called Hobbes many hard names, until he was practically chased out of England by the Church. He lived much of his time in Paris.

THOMAS HOBBES, THE VERY OLD MAN WHO LAY AWAKE AT NIGHT

We read in an old chronicle that, "on the memorable Tuesday, the 29th of May, 1660, as the restored king, Charles the Second, was passing in triumph down the Strand, Hobbes, having come up from the country on purpose, was standing at the gate of Little Salisbury House, where the Earl of Devonshire then lived, and was observed by his Majesty, who immediately sent for him, and, having given him his hand to kiss, kindly inquired after his health and circumstances."

Hobbes lived to be nearly ninety-two. "Even when an old man," we read, "though he had not a good voice, he used to sing when lying awake in the night. He thought the exercise good for his health." "The wits at Court," says Aubrey, "were wont to bait him; but he would make his part good, and feared none of them."

Towards the end of his life he could not bear that anyone should speak about death in his presence. "The winter before he died he made a warm coat, which he said must last him three years, and then he would have such another." On his deathbed he asked whether his disease was curable, and, hearing that there was no remedy, he used the expression: "I shall be glad, then, to find a hole to creep out of the world at." During his health the only thoughts about death which he allowed concerned an epitaph for his tomb. The old fellow was best pleased with the witty idea: *This is the true Philosopher's Stone.*

THE MAN WHO HELPED TO SET EUROPE FREE FROM THE RULE OF THE PRIEST

We shall probably never read his great work Leviathan, for it has become old-fashioned; but we must remember that this fine old giant helped to clear the mind of Europe from superstition, and was one of the men who saved humanity from the rule and dominion of the priest.

While science was proceeding to move farther and farther away from blind faith there arose in Ireland a remarkable young man named George Berkeley, who challenged the whole empire of humanity with the most puzzling idea imaginable.

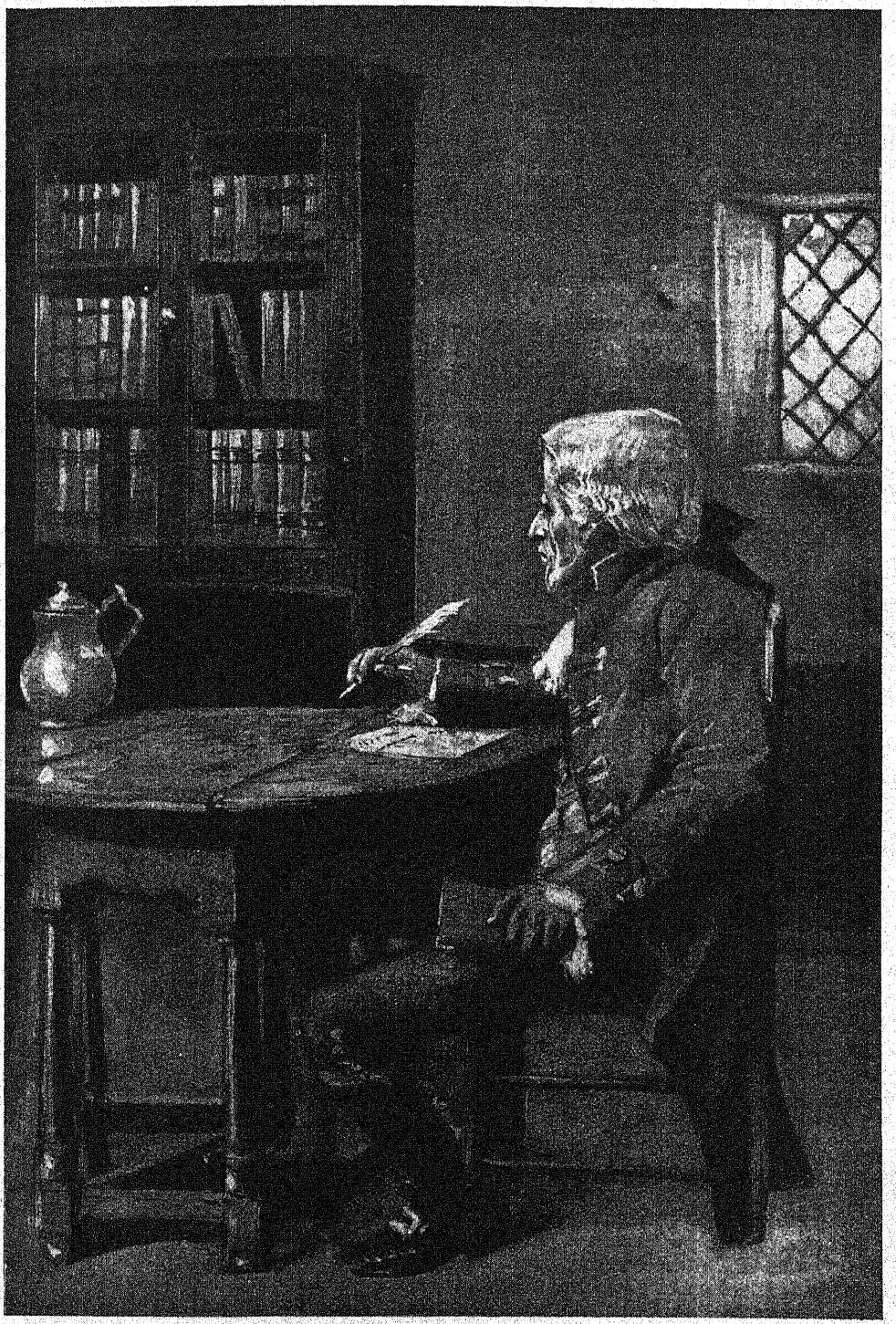
This revolutionary idea was founded on the difference between seeing a thing and touching a thing. If a blind man, who knew things only by touching them, were suddenly to have vision bestowed on him, would he recognise with his eyes the things he had known by his hands? Several years after his book came out a blind man did receive sight, and he confirmed what Berkeley had written. He could not tell which was cat and which was dog; and, puzzled by these two senses of touching and seeing, asked which of them was the lying sense. The world seemed so different that he could not believe they were one and the same thing.

THE FUN PEOPLE MADE OF THE WISE TEACHINGS OF BISHOP BERKELEY

Berkeley taught that matter exists only in the mind. It is impossible to explain his theory in simple language; a great many old men cannot grasp it. People made jests about it: "What is matter? Never mind. What is mind? No matter." And long after Berkeley had become a bishop and died, Byron wrote of him:

When Bishop Berkeley said "there was no matter,"
And proved it—'twas no matter what he said:
They say his system 'tis in vain to batter,

A LITTLE MAN WITH A GREAT MIND



IMMANUEL KANT WRITING HIS IMMORTAL MESSAGE TO THE WORLD
4843

Too subtle for the airiest human head;
And yet, who can believe it? I would shatter
Gladly all matters down to stone or lead,
Or adamant, to find the world a spirit,
And wear my head, denying that I wear it.

But Berkeley was a greater man than Byron, and many people to this day believe that Berkeley discovered a great truth. Certainly he has made us feel that mind is the most important thing in the material universe, and the idea that matter exists only in the mind is not so ridiculous as it may seem.

JOHN LOCKE, THE MAN WHO EXAMINED OUR BRAINS

But a far more practical thinker than good Bishop Berkeley was John Locke, whose essay on the Human Understanding made a profound sensation throughout Europe. While other men were delivering themselves of theories about the world, Locke set himself to discover what was a man's capacity for understanding anything at all. How do we *know* things? He came to the conclusion that we have no ideas born into our minds at birth.

A child, he argued, does not believe in God, and does not know right from wrong. These ideas have to be taught. But where does man get those ideas which fill his mind and order social life? He gets them from experience. Experience has two forms—there is the experience which tells us through the sense of touch that rocks are hard and moss is soft; and there is the experience which guides us to definite ideas through reflection. One is external experience, and the other is internal experience; but neither is of the mind itself; neither is inborn. We have to use our brains, and we can only use them on those impressions which we receive from the outside world. Locke was a hard-headed, practical man, who examined the brain as a mechanic does an engine.

IMMANUEL KANT, THE LITTLE MAN WITH A GREAT MIND AND SOUL

A complete change in man's ideas about himself and the universe was the work of a little German professor of Scottish extraction, Immanuel Kant.

Let us picture to ourselves a dwarf-like figure, little more than five feet high, with a deformed shoulder, a hollow chest, and feeble, stick-like limbs. Place on this body a fine head, the brow high and noble, the eye blue and intelligent, the complexion fresh, the hair light-coloured, and then imagine the voice proceeding from the thin lips, very weak and piping. Such was Immanuel Kant the man. But the soul of him was grander. He was youthful, cheerful, and even gay of heart; he was witty and humorous; and in all respects he was simple, unaffected, very sincere, and highminded.

In winter and summer he rose at five o'clock, studied for two hours, and from nine till one sat at his desk. Then he went out and dined at a restaurant, changing the place frequently because of the crowds that flocked to see him. Over this meal he would sit a long time, talking with his friends till late in the afternoon. Then he walked for an hour and returned to his books. He was fond of talking to travellers. He read many books of adventure, and was interested in geography. A simpler, kinder little man never yet was jostled by the hurrying crowds in the streets of a city.

THE TEACHING OF KANT WHICH CHANGED ALL MODERN THOUGHT

What was it that Kant taught? He showed that Locke was wrong in limiting everything to experience. He showed that the brain does not merely receive an idea through a sense and reflect on it; but that it receives many ideas and joins them together, and comes to a conclusion about them. He called this master of the brain, this captain of our mental ship, the Ego. What is it in the brain of man which links up the separate ideas received through the eye, the ear, the touch? What is it that says: A something is, something else should be? It is the Ego, the I, the Personality, the Soul.

He went on to prove that the mind does not depend entirely on the senses. He spoke of intuitions. We know certain things *intuitively*, inwardly, without thinking them over, without getting them through the senses, without being able to prove them. A man *thinks* out an improvement for an engine; a man *feels* the mystery of Time, Space, God. There is a moral world as well as a physical world.

We cannot explain here the profound depths of Kant's work. The result may seem to us simple and commonplace. But with the deepest thought and the most wonderful precision of argument, this little man overthrew the vast army

of Materialism, and showed that beyond the senses, and beyond the solid, tangible things of Earth, there is a spiritual or transcendental reality.

What are called natural laws do not account for the universe. "It is absurd," said Kant, "for a man even to conceive the idea that some day a Newton will arise who can explain the origin of a single blade of grass by natural laws uncontrolled by Design." He did not say that man could understand God, or that we could prove His existence; but he showed that God was a necessary intuition of our minds. We cannot think of the universe without mind. As for human understanding, we never can properly understand anything as it really is—not even a tree, much less an ant, a bee, a flower.

THE MAN WHOSE MIND WAS OPEN TO THE MYSTERY OF LIFE

Here is an interesting letter written by Kant, which shows us that his mind was open to the mystery of life, and that he did not laugh at strange things merely because he could not understand them. The Swedenborg mentioned in the letter was a famous teacher who saw visions and founded a system of religious thought which lasts to our day:

M. de Swedenborg, towards the end of February, on Saturday at four o'clock p.m., arrived at Gothenburg from England. Mr. William Costal invited him to his house, together with a party of fifteen persons. About six o'clock, M. de Swedenborg went out, and, after a short interval returned to the company quite pale and alarmed.

He said that a dangerous fire had broken out in Stockholm at the Suderhaben—*Stockholm is about 300 miles from Gothenburg*—and that it was spreading very fast. He was restless, and went out often: he said that the house of one of his friends, whom he named, was already in ashes, and that his own was in danger. At eight o'clock, after he had been out again, he joyfully exclaimed: "Thank God, the fire is extinguished the third door from my house!"

THE VISION OF SWEDENBORG THAT WAS PROVED TO BE TRUE

This news occasioned great commotion through the whole city. On the Sunday morning Swedenborg was sent for by the governor, who questioned him concerning the disaster. Swedenborg described the fire precisely—how it had begun, in what manner it had ceased, and how long it had continued.

On the Monday evening a messenger arrived at Gothenburg, who was dispatched during the time of the fire. In the letters brought by him the fire was described precisely in the manner stated by Swedenborg. . . The fire was extinguished at eight o'clock.

A few days before his death—almost blind, and with his mind wandering in a maze of words—Kant thanked the doctor attending him for all his kindness, adding: "I have not yet lost my feeling for humanity." One of his sayings was: "Whoever will suggest to me a good action left undone, him will I thank though he suggest it even in my last hour." The remark was characteristic of this wonderful and kindly little man whose philosophic writings had so much influence on the thought of the nineteenth century.

Let us remember that there are two orders of mind. There is the man who looks at life, sees what he can see of it with his eyes, and straightway pronounces judgment on the whole universe! As he sees, so he judges. And there is the man who compares what he can see with what his spiritual nature assures him to be true, and waits for God to complete his learning.

THE FEELINGS THAT COME INTO THE MIND OF EVERY MAN

Ralph Waldo Emerson, the splendid American, has admirably summed up this conflict. The difference, he says, between philosophers like Spinoza and Kant and philosophers like Locke, is that one class speaks *from within*, or from experience, as possessors of the fact; and the other class speaks *from without*, as spectators merely. Our eyes show us but little; our souls assure us of all. But we must be careful to feed our souls with the solid food of reason, and not with superstition which is poor, unsatisfying nourishment for the hungry soul of man.

There are in every man, as Kant teaches us, certain convictions which are not learned from a book or acquired by experience. We must remember these convictions when we listen to the ideas of people. We must nourish them with great and true ideas. We must try to feel more and more deeply what Spinoza taught, that the awful and glorious Being dwelling in infinity and eternity includes in the kingdom of His power the men and women of this little star on which we live out our short span of life.

A GOLDEN DEED THAT WILL LIVE FOR EVER

GRACE DARLING ROWS OUT FROM LONGSTONE LIGHTHOUSE IN A RAGING SEA TO THE RESCUE OF SHIPWRECKED MARINERS. See story on page 4849.

The Great Stories of the World That Will Be Told for Ever

THE UPRIGHT YOUTH

IN this very century Serbian troops were led to victory by a man who lived six hundred years ago. There can hardly be a more striking example of how a name, a character, can live on, and work on, after the body's death.

It was in the Balkan wars before 1913. General Mishitch told the story at a dinner which was given in honour of Surgeon-General Bourke and two units of the British Red Cross.

His troops were assembled at the foot of Mount Prilip, on which stood the fourteenth century castle of Prince Marko, the great hero of the Serbian race. The men were ordered to wait till the artillery had done its work on the castle, which was held by the Turks.

But all at once the general saw his men snatch up their rifles and rush toward the Mount. In vain their officers shouted to them. Discipline and sanity had gone to the winds. Straight at certain death the Serbians hurled themselves.

The general said his blood froze, and he closed his eyes. The Serbian artillery ceased fire, or it would have mown down its own men. Turks and Serbians had come to grips.

The next thing the astonished officers who were watching the charge saw was their own colours floating from the castle.

After the amazing victory a parade was called, and the general addressed his men, reproaching them for their disobedience.

With one voice they thundered back: "But Marko called us on! He led us on his piebald Sharatz!"

From their babyhood the soldiers had heard ballads about Marko and his steed. They believed he would come to help Serbia in her need, just as the Devon men believe that Drake will come back if England is invaded. And their imaginations presented him to them so vividly that they performed prodigies, thinking they saw him lead their charge.

Who was this Marko?

He was the son of a petty king Voukashin and a noble lady Yevrossima. Though his strength was almost superhuman and he was said to fear none but God, he was always loving and submissive to his mother; and, though the Serbian bards are fond of making their heroes drink deep, Marko was never drunk any more than he was ever disloyal.

We have no space to tell all the stories of his chivalry and prowess; the legends of his famous horse Sharatz are told on page 4610 of our book. Here we tell how he told the truth about the tsardom.

King Voukashin had been Councillor of State to Tsar Doushan the Powerful.

Marko was brought up at the Court, and became a great favourite with the emperor. Surrounded, as all the mighty are, by time-servers and ambitious hypocrites, Doushan saw in Marko's fearless eyes that rare thing honesty.

When Doushan came to his death-bed he sent for father and son. He asked Marko to take care of the young Tsarevitch Ourosh, and he bade Voukashin rule the land for seven years till the boy was old enough to bear the weight of a crown. Then the old tsar died in peace.

The years sped past while Marko was busy training the little prince in all knightly ways, and often fighting against the country's foes. But when the time was up Voukashin would not resign the sceptre. Marko pleaded with his father long and earnestly, but in vain. Then, because he could not draw sword on his own father or uphold a traitor, Marko decided to go away and shut himself up in his castle at Prilip.

There were four camps on the plain of Kossovo. One belonged to Voukashin, two to his brothers, Oughesha and Voïvode Goyka, and one to the tsarevitch. They were not yet at open war, but their eyes were full of hatred as they met to dispute the tsardom. Each claimed that Doushan had left it to him. At last they agreed to abide by the decision of Archdeacon Neydelyko, who had given the last sacraments to the dying emperor.

The three pretenders' messengers galloped to the prelate's house, and bawled for him imperiously. When the trembling servants replied that he was in the cathedral they cantered off, and entered the sacred place on horseback, shouting their errand, and striking at all about them with their whips. Nevertheless, the archdeacon bravely reproached them and bade them wait for him outside, and finished the service before he gave his answer.

Then he told them that the emperor had said nothing to him about who should inherit the throne, but Marko, the emperor's secretary and friend, must know. Moreover, Marko would speak the truth.

The messengers set off for Prilip, and they spoke as courteously to the famous warrior as they had behaved ill to the aged priest. Marko went to his mother and told her what had happened. She replied, " My son, you must speak truth, no matter what the price."

So Marko mounted his horse and rode off to Kossovo. The four claimants were standing close to a little white church. They were all delighted to see him. Voukashin thought : " He will say I am to be tsar because then he will inherit the throne after me."

Each of the uncles thought : " He will give me the crown because I have always petted and spoiled him from babyhood."

The tsarevitch thought : " Marco cannot tell a lie."

The hero dismounted and said : " O, my father and my uncles, are not your lawful possessions great enough for you ? How can you covet what belongs to one so young and defenceless ? You know well that Ourosh is our tsar."

At these words Voukashin was overmastered with rage ; he snatched his sword from its scabbard and sprang at Marko. Now the youth who had not fled from twelve Turks ran away from his father, for he could not think of fighting him. Round and round the church the traitor chased his true son. Then the doors were flung open, and a voice bade Marko enter. They clanged again on his heels.

Legends say that as Voukashin hacked at the door in his blind fury the wood began to bleed, and the miracle brought him to a sense of his crime.

Be that as it may, Marko lived long to support the young tsar in council and war.

THE FOX WITHOUT A TAIL

ONE day a fox was caught by his tail in a steel trap, and was only able to escape by leaving his tail behind him.

When, however, he began to mix with his friends again he became so worried about the disgrace of going about without a tail that he almost wished he had died in the trap. So he called the other foxes together and said : " How useless are tails to animals, and how awkward and inconvenient to us foxes are those horrid brushes. I have never enjoyed myself so much or moved so freely about the woods as I have since I made up my mind to rid myself of my tail. And I advise you, my good friends, to do the same."

But a sly old fox, guessing about the trap, answered him mockingly :

" I believe, friend, that you found it only too convenient to part with your tail, and when we are in the same fix perhaps we may do the same."

GRACE DARLING

THE young sailor looked up from his work and found a woman clinging to the rail beside him. She was poorly dressed in a rusty shawl and old straw bonnet. The wind tore at her skirts and hair. Her face was puckered with anxiety.

"Do you think there will be danger?" she asked, shouting above the deafening noise of the gale.

The boy looked at the black sky and the swollen waves. He replied: "You might say there's always danger at sea."

She edged closer.

"I've got two little children with me."

"I wouldn't fret, ma'am," said the youth hastily; "I've seen worse weather than this."

The woman broke out suddenly:

"I'm bringing them to meet their father. We're all he's got."

"We shan't come to any harm, ma'am," said the boy, smiling at her. "I can't be spared yet awhile. I've got my grandmother and a little brother and sister to keep. Who's to look after 'em when I'm gone? Why, we can't come to any harm! You go below, ma'am, and try to sleep."

She smiled faintly, and, turning, struggled away.

Presently a bearded sailor joined the lad.

"Well, Ned," he said, "have you heard the news? The old leak has broke out again. So much for their patching!"

"Why, that's bad," replied the boy.

"Bad?" cried the sailor. "Is that all it is? I tell you what, my child, it's worse than bad, it's hopeless. How will they keep the engine fires alight? And the weather's full of mischief. There's fog as well as gale ahead of us."

The boy looked up at the dark clouds bulging down on them.

"It don't look like a lucky night," he remarked ruefully.

"Lucky?" cried the other. "Shall I tell you where the Forfarshire, steamer of three hundred tons, John Humble, master, is bound for? Not for Dundee; for a wetter place than that!"

The boy bent hastily over his work. He felt a knot gathering in his throat. Suppose Anderson was right, what would become of them at home? They would not starve; but he had heard that they were cruel to children in the poorhouse, and hustled the old folk about like cattle. He could not face the thought of it, and said gruffly, to hide his feelings, "I'm not a-going to meet trouble half-way."

"It'll come all the way to meet you tonight," replied the older man.

Now the darkness fell swiftly. The wind rose to a whining shriek. The vessel went haltingly on her way.

All at once there was a rush of feet on the deck, and the shouting of new orders.

The boy ran up, calling to a messmate: "What is it?"

"Sails! The fires are out! We must hoist sail!"

As he worked on the stiff canvas and ropes the boy felt that the gale was an evil spirit bent on destroying the Forfarshire. It seemed to him that he could hear spite in the shriek of the wind.

The superstition grew on him as the night dragged on. He could almost have talked to the storm. "What sport is it to hunt down a crippled ship? What have we done to make you angry? We're a lot of poor men, with women and little children depending on us."

The ship was being driven southward. The heavy seas that lifted her up and dashed her down could hardly be seen for fog and rain.

Dawn was still some two hours off.

"We're blind," thought the boy; "and even if we could see we shouldn't be able to choose our way."

Rage at their helplessness burned in him. The demon was relentlessly driving his prey into a corner.

Suddenly out of the dusk ahead there towered a black mass. It was as if the land had leaped forward to meet them.

A terrific shock ran through the vessel. The boy was flung off his feet. Then above the tumult of the storm came the screams of human voices: "She has struck! We are wrecked!"

What followed was more horrible than the boy had ever imagined. The deck was crowded with people running to and fro, wailing for help that no one could give. Some set about lowering a boat into the boiling sea. Two people flung themselves over the side, and were swept away by the waves. The boat itself vanished.

Now the demon was beginning to tire of his play, and hastened to make an end of the victim. She was pounded by waves that fell like sledge hammers and then rushed roaring over the decks, sweeping them clean of everything.

The boy was clinging to the bow rails with all his might, frozen to the marrow and half suffocated. In the noise and

terror of that hour his mind went back to an old Bible of his grannie's, with a picture of people in torment, and he thought: "This is worse than the flames!"

All at once a greater wave lifted its head from the sea, hovered a moment, and then fell. The ship was lifted and immediately dashed down again. There was a noise of tearing and crashing like the fall of a forest. She broke in half, and the hind part was swept away by the current.

The fore part was wedged on the rock. A miserable death was now only a matter of time. Perhaps the boy's strength would fail before the ship's; it was a question whether he would be swept off the decks or sink with the vessel.

The seas thundered to and fro. The morning grew grey on a scene of unabated storm. Daylight found nine people waiting for the end.

Across the evil seas, on one of the black rock-islands, a tall finger pointed to the sky. It was the Longstone Lighthouse. The boy's eyes fixed themselves on it. There were human beings there. Perhaps they were looking at the wreck, though they could never guess that there was anyone left alive on it. They would sigh "Poor souls!" But they would eat their meals and do their work just the same.

A sort of stupor fell on the boy, and pictures danced in his mind. He saw the cottage kitchen, with firelight shining on the white cloth and the crockery. He saw the village green, with its tall elms gilt with sunset; three people in black were walking along the footpath, they carried bundles and were weeping because they had been turned out of their home.

The boy forced his eyes open, and blinked away the visions. A black speck rode on the waves by the lighthouse. It must be wreckage from his own ship. Could he ride on a plank? He was likely to be battered to pieces on the rocks, unless he slipped off from exhaustion. Suddenly he screamed: "It's a boat!"

Someone cursed him. No boat could live in such a sea. His cry had startled the dying. But presently faint voices were clamouring with him: "It is a boat!"

Up and down the waves it danced, drawing steadily nearer. There were two people in it. The boy found himself crying. The hope was more than he could bear.

But the boat came on, and reached some low-lying rocks near by. One of the people got out, and began to creep toward the wreck, while the other held the boat.

One by one the rescuer had to lead the survivors over the rocks to the boat. The boy's turn came last.

"Is there none below?" asked the lighthouseman. He and the boy climbed down. In the fore cabin they found a woman clasping two children in her arms. They were dead. Gently the lighthouseman discovered that the woman still lived, and alone, for the boy was too weak to help, he bore her up to the ruined deck.

"A little longer," he said, "and you'd have been like those poor children. When I saw the wreck this morning I didn't dream there could be anyone on her. But my daughter, she swore she could see people through the glass. Then I didn't believe we could reach you. But she would have us try."

The boy stumbled over the rocks, thinking that he owed his life to a girl's eyes and tongue. He was going to see his home, and the little ones, and the birds building again.

They had reached the boat, and now he stood staring stupidly. The second boatman was a girl.

During the hard shoreward journey he could not take his eyes off the little fair creature straining at the oar. He could never repay her. He could never thank her. But the little ones said their prayers each night; he would ask her name.

She turned her eyes from the sea, startled by his question.

"I am called Grace Darling," she said.

THE STORE THAT NEVER GREW LESS

ONE wild winter night a little woman in a green cloak knocked at a farm on the east coast of Buchan and asked for the loan of some oatmeal. The farmer's wife had only meal enough for three days, but, being a kind-hearted soul, she gave the little woman half of it.

The next night the little woman brought back the meal and said: "Mix this with what you have left, and you will never want any more."

In the night there was a very great snow-storm, and the roads were quite blocked up for thirteen weeks. All that time everybody in the farm had to live on the fairy meal, and, no matter how much they ate, their scanty store never grew less, thanks to the good fairy.

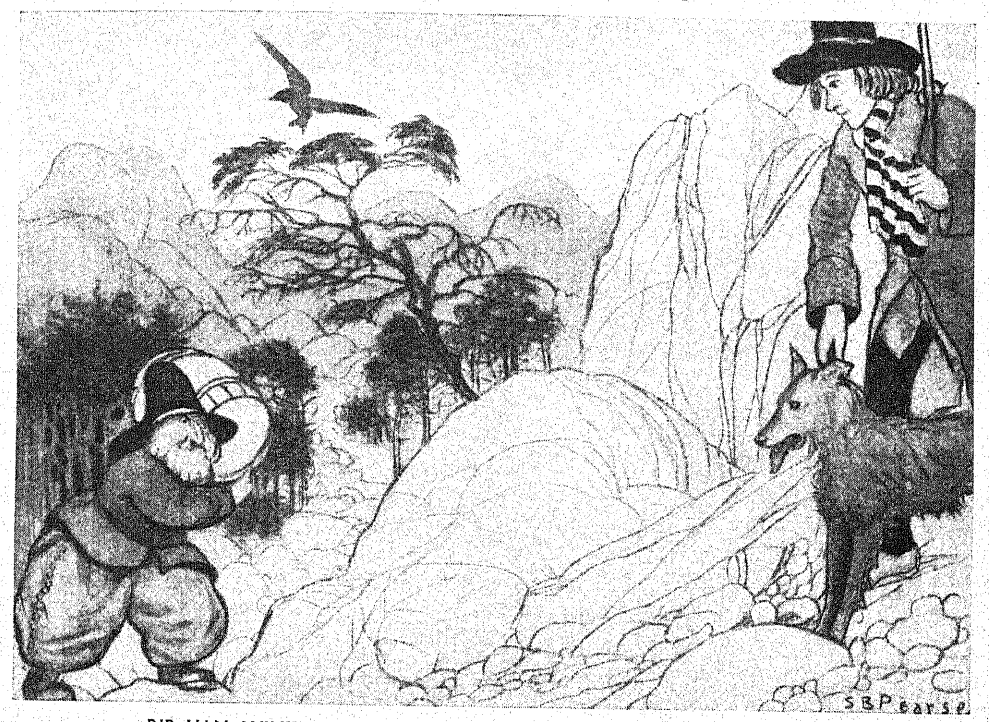
THE STORY OF RIP VAN WINKLE

LONG ago, when America was a province of England, there lived in a village at the foot of the Catskill Mountains a man called Rip Van Winkle.

You will probably envy him when you hear that his father had left him a farm where the broad Hudson River flowed through a fair green landscape, overlooked by some of the finest, most rugged, and mysterious mountains in the world. The Indians said that goblins and rain spirits haunted their ravines. Rip Van Winkle knew very well that there was plenty of game to be shot in their woods. Moreover, he lived in such a delightful village! It had been built long ago by settlers from Holland, and very picturesque it looked with its lattice windows, gable fronts, and any number of weathercocks.

But Rip Van Winkle was not happy because his wife was always scolding him, and, to tell the truth, she had reason for her incessant complaints. For her husband could never manage to do more than two days' work a week, and had let his farm go to ruin. He was always ready to do odd jobs to oblige a neighbour, to make kites or tell stories for the children, to sit patiently fishing, or tramp miles with his gun; but as to minding his own business, he never could set his heart on it. So his children went ragged and his wife grew more sour every day, while all the neighbours liked him for a good-natured, easy-going fellow.

One sunny morning Rip had been driven from the house by his wife's tongue, and betook himself to the bench outside the village inn. There, under a signboard showing King George, all the idlers of the place would sit smoking their long pipes, while the village schoolmaster read them last week's newspaper. But Dame Van Winkle pursued her husband there, upbraided him for not being at work, and finally drove him off—but not to his fields, which were so badly in need of his attention. Rip betook himself, his dog, and his gun to the mountains.



RIP VAN WINKLE SAW A MAN STRUGGLING UP THE DRY RIVER BED

It was late in the afternoon when he threw himself down to rest on a sort of spur in the hills. On one side he could see the Hudson wind its silver way through the pastures, on the other side he gazed into a precipitous ravine, which looked as though it had once been the rocky bed of a torrent. As Rip never had the least difficulty in doing nothing he lay there

till it was growing dusk. He was beginning to think of supper and his wife's reproaches when all at once he heard someone calling his name, and the voice came from the ravine.

Looking down, he saw a man struggling up the dry river bed with a barrel on his shoulder. Thinking it was a neighbour who needed help, Rip scrambled down the ravine-side to give it. The man was a stranger, and an odd-looking creature at that; he wore a leather jacket and very full breeches, trimmed with buttons down the side. He made signs to Rip to help him, and so they went on together, too breathless to speak.

Ahead of them Rip heard a rumbling sound like thunder.

Presently the precipitous walls of the ravine opened into a sort of amphitheatre. Its tall, rocky sides were thickly covered with trees, and hardly any light fell on the strange company who played at ninepins on the sward beneath. They all left their game to stare at Rip, who felt his knees knock under their gaze. For they all wore the dress of olden days, and their features were grim as well as ugly. But the man who had brought the barrel made signs that flagons and goblets lay on the grass, and that Rip was to serve the company with drink. He obeyed, and felt especial awe in approaching one who seemed to be the commander, and was very smartly dressed in a gold-laced coat, feathered hat, and sword.

As they soon returned to their solemn game, and Rip was unnoticed, he thought he must taste their drink, and he set the flagon to his lips. At once a delicious drowsiness overcame him, and he knew nothing more.

When he awoke the birds sang and dew sparkled on the briars. He was lying on the spur in the hills. Looking down to the ravine, he was amazed to find that it was filled with a raging torrent, which roared and foamed as it rushed along.

"Oh, that wicked flagon!" groaned Rip. "My wits are still addled. What shall I say to Dame Van Winkle? Oh, how stiff the night dews have made me, and how rusty my gun has got!"

He whistled to his dog for some time, but in vain, and then set off for home. On the road he met several strangers, oddly dressed, who stared very rudely. However, he pushed on till he came to his own house . . . but it was a house no longer, only a heap of ruins. His heart stood still; he screamed the names of wife and child, but, no matter how loudly he called, silence was the only answer.

He now hastened to the village inn, where a crowd of strangers were assembled. A man at once came up and asked "Whether he was going to vote for the Federals or Democrats?"

"Why," said Rip, "I don't understand what you mean. I am a loyal subject of the King!"

At this a shout went up that he was a traitor and a spy. The signboard now bore the portrait, not of King George, as it did when Rip last saw it, but of President George Washington.

One of the men who was presiding over the election at last managed to restore order, and then he turned to Rip and asked sternly who he was.

When Rip Van Winkle told his story there was a murmur of astonishment and unbelief. Whenever he asked for a neighbour who could bear witness to his identity he was told they were dead. But presently a handsome woman with a baby on her arm pushed through the crowd, and gazed keenly at him.

"My father was Rip Van Winkle," she said. "He went off to the mountains twenty years ago; his dog returned, but he never did. I think—yes, in spite of your grey beard and the wrinkles in your face—I think you are he!"

Rip Van Winkle suddenly realised that he had wasted years of youth and strength in that one enchanted night's sleep. Everything had changed. His wife was dead, as well as his cronies. He was a poor, useless, friendless old man. He covered his wrinkled face with his hands and burst into tears.

But although he had not provided for his children his daughter was ready to provide for him. She had married a prosperous farmer, and Rip Van Winkle made his home with them. Very soon he was, as he had been of yore, the children's favourite, the best storyteller to be found in the village.

As for the grown-ups, they said that Rip Van Winkle must have seen Henry Hudson, the ancient discoverer, who, with the crew of the Half Moon, returns from time to time to his ancient haunts. No one has seen them since, but whenever it thunders in the Catskills people cry: "They are playing ninepins again!"

LES OIES QUI GARDAIENT ROME

This is a French translation of the story told in English on page 4737

ROME était assiégée. Un terrible et nouvel ennemi l'attaquait. Ces hommes venaient du Nord. Ils étaient grands et sauvages, avaient des yeux bleus perçants et de longs cheveux d'or qui brillaient. Ils s'appelaient les Gaulois.

Des batailles sanglantes furent livrées dans la ville, et les légions romaines se virent repoussées sans cesse. Les Gaulois étaient non seulement forts, mais audacieux. Ils se jetaient sur les Romains en poussant des cris terribles et décimaient leurs rangs.

Les pauvres Romains furent finalement obligés de se retirer dans leur dernière forteresse, appelée le Capitole. Ils s'y trouvaient en sûreté, car qui aurait jamais songé à escalader le roc à pic pour franchir les murs puissants du Capitole ? Mais c'était terrible et triste pour les soldats romains, bien qu'ils fûssent en sûreté, de voir du haut des murs du fort les sauvages Gaulois brûlant leurs maisons et s'emparant de tout ce qu'ils possédaient de précieux.

Les Romains bientôt eurent affreusement faim. Plus d'une fois, ils durent regarder les oies sacrées qui vivaient dans le temple de Junon, en se disant que ce ne serait pas un crime de les tuer pour les manger.

Mais les oies étaient sacrées aux Romains. Les tuer eût été un sacrilège.

Il arriva, une nuit, tandis qu'un jeune Romain, nommé Manlius, était endormi près de son épée non loin du temple de Junon, qu'un bruit étrange troubla ses rêves, l'éveilla subitement, et lui fit saisir son épée en se levant rapidement.

Il reconnut le bruit aussitôt. C'était le cri des oies sacrées. Qu'est-ce qui avait réveillé ces oiseaux ?

Le bruit augmenta, et devint bientôt une rumeur d'alarme et de panique ; tout le troupeau d'oies remplissait la nuit de ses cris de frayeur.

Manlius courut aux murs du fort et se pencha. Il se trouva face à face avec un Gaulois !

Le chef des Gaulois avait conduit ses hommes à l'assaut pour une attaque nocturne, et il allait se hisser par-dessus le mur quand Manlius apparut. Manlius aussitôt saisit les poignets tendus du Gaulois, arracha ses doigts du parapet, et lança son ennemi à bas de la colline.

Le cri d'alarme des oies devint de plus en plus perçant. Des Romains furent éveillés en sursaut, et, saisissant leurs armes, ils se hâtèrent d'aller voir ce qui se passait. Ils trouvèrent Manlius qui défendait les murs. Avec un cri de victoire, ils s'élancèrent à son secours, et en quelques minutes toute la garnison fut éveillée ; les Gaulois furent repoussés et complètement battus.

THE POMPOUS OFFICER

A FAMOUS count was once in a large social gathering of Poles who amused themselves by telling anecdotes about the ignorance and stupidity of the Russian officers. Said he:

"Once I entertained some Russian officers to breakfast. The dishes were put on the tables and everybody took what he liked. Among others there was a dish of small river lampreys, and beside them, on a similar dish, some cigars. A Muscovite officer, who had never seen cigars in his life and noticed how the lampreys were eaten, took several cigars on a plate, dressed them with oil and vinegar, and ate them with relish."

This story reached a Russian regiment in the neighbourhood, and a young captain, who in former years had been a guest in the count's house, imagined that the story referred to him. He challenged the count to a duel, and requested him to ask his pardon in person.

The count accepted the challenge, and in presence of the witnesses he said:

"My dear captain, you were offended by a mere joke which did not at all refer to your worthy person—*indeed, the thing never happened except in my own fancy.* I declare in the presence of witnesses that in inventing my joke about the cigars I did not intend to offend the Russian army; I did not think that anybody would take it seriously. And now let me give you a piece of friendly advice. Never think that any saying refers to you unless you are mentioned expressly by name. I have always followed this rule myself. For instance, if anyone seeing us two sitting here together should dare to refer to one of us as an ass I should not dream that he referred to me."

The witnesses, appreciating the point, applauded loudly, but the captain shook hands with the count and went out, having no idea that he was being made a fool of.

STORIES TOLD IN CHINESE SCHOOL BOOKS

Some more Stories Told in Chinese School Books appear on page 3014

ARROWS FOR HIS SOLDIERS

In a great war the general on one side found that his stock of arrows had quite run out, although he knew that his opponent had plenty. So he determined to replenish his own stores from those of the enemy.

He had a large number of straw men made and dressed up in soldiers' clothes. These were arranged in masses on the decks of the war junks, and on each boat there were a few real soldiers with loud gongs and a few sailors to guide the ships. When all was ready the ships approached the enemy's shore, and the gongs were sounded as though for battle.

The other general, seeing what appeared to be a great army approaching, ordered all his best archers to the front, and made them fire away for some hours.

At last, when the straw dummies had many thousands of arrows sticking in them, the retreat was sounded, the fleet moved away, and the arrows were collected and distributed among the soldiers.

THE DOCTOR WHO LEARNED TO SWIM

A doctor who had been called in to see a sick man treated him so unskilfully that the man died. Thereupon the family seized the doctor and tied him up to a post, intending to punish him.

But during the night he got loose from the cord that held him, and escaped by swimming across a wide river.

On reaching his home the doctor found his son hard at work studying some medical books.

"My son," said he, "do not be in such a hurry to study your books. The first and the most important thing for a doctor to do is to learn to swim."

THE RATS AND THE SALT

In China men do not see their wives until after they are married; the wedding is all arranged by the parents of the bride and bridegroom.

After his wedding a certain bridegroom noticed that his wife looked much older than stated, and he asked her age.

"I am forty-five," she replied.

"But in the contract," said he, "your parents declare you are thirty-eight."

"As a matter of fact," replied the bride, "I am really fifty-four."

This, however, did not satisfy the bridegroom, and he determined to trap his wife into saying what her age really was. Before locking up for the night he said in her presence: "I must go and cover up the salt jar or the rats will eat the salt."

"What," said his wife, "rats eat salt! Why, I have lived sixty-eight years, and it is the very first time in my life that I ever heard of such a thing."

THE PRINCE'S GIFT

The Prince of Chi once asked his son-in-law, Chun-Yu, to go to a neighbouring State and beg that an army might be sent to his assistance in a war he was waging against the Prince of Chu.

When Chun-Yu asked for a present to take to the ruler of the neighbouring State his father-in-law gave him the ridiculously small sum of a hundred pounds of silver. This was altogether too insignificant a gift for a powerful prince, but it would have been bad manners for Chun-Yu to say so to his father-in-law. So he decided to use another method.

He began to laugh, and of course the prince asked him what he was laughing at.

"Why," said he, "I was out walking this morning and I saw a farmer sacrificing a pig's foot and a single cup of wine, and as he sacrificed he prayed that the gods would make his upper fields fill baskets and his lower fields fill wagons, that his gardens might blossom abundantly, that his crops might increase and ripen, and that his barns might burst with grain. And as I heard him," said the prince's son-in-law, "I could not help laughing to think that a man who asked so much should offer so little."

The Prince of Chi at once saw the point, and increased the value of his gift.

THE TEA THAT NEVER CAME

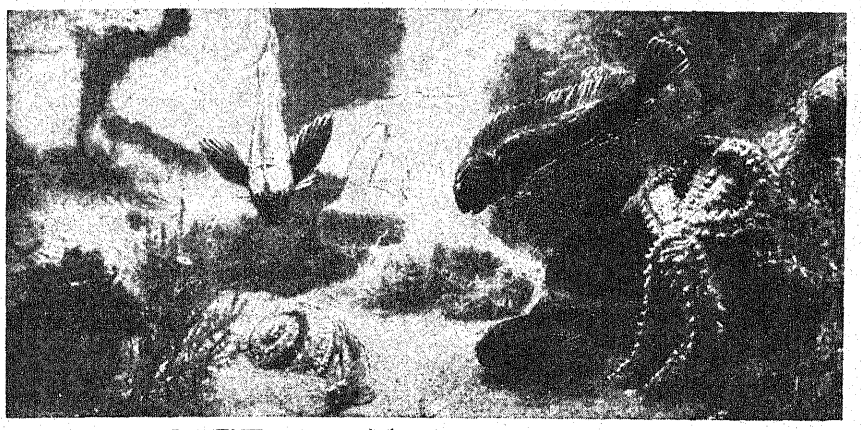
A man in a Chinese village called to have tea with a friend. There was no tea in the cupboard, and a servant was sent out hastily to the neighbouring houses to see if he could borrow some.

A vessel containing water was put on the fire, and soon the water was boiling. As the servant had not yet returned more cold water was put on, and this also was boiled before the servant came back from his errand.

Several times this was done, and still no servant arrived with tea. At last the wife of the host, getting impatient at the delay, said to her husband:

"As we do not seem likely to get any tea perhaps you had better offer your friend a bath instead!"

Nature's Wonderful Living Family in Earth and Air and Sea



LIFE IN THE WATERS

WE have travelled far together in pursuit of knowledge of mammal, bird, and reptile, and have come to the brink of the waters to survey the things that, whatever their way in after life, must obey the summons of Nature to lay their eggs in moist places.

We have explored mountain and valley, jungle and marsh; now we embark on the deeps, the water, in which all Life originated. We have considered every known class of land animals, yet have exhausted only two-sevenths of the area of the world. There remain five-sevenths of the world, all under water. There is life in every drop of this vast world of sea and ocean, river and lake.

The oceans are constantly evaporating and pouring their rivers of vapour into the air, from which they descend as rain, snow, and hail, to fill lakes and rivers which carry back to the seas many millions of cubic miles of water every year.

The steaming oceans give the dew of life to the land, quench our thirst, sustain plant and animal, and support within their depths the greatest of all assemblages of known life.

In no place are more astounding wonders found than in the waters. It is a realm where surpassing beauty contrasts with grim hideousness, a place of idyllic existence in sunny seas by golden sands and fairy caves, balanced by dark villainies perpetrated in unsunned abysses; of lovely colours worn by fish and shell, of light that springs from the bodies of animals, of fishes with eyes like gleaming lamps, of other fishes that are blind.

Nowhere do we find contrasts more startling. Here in a single drop of water is the entire world of many animalcules; one of them would be desolate, lost at sea, if left alone in a globule of moisture—so unthinkably tiny it is. In such a speck of water there may be more living creatures than there are people in England.

The tiniest things that have life are in the waters, and so are the greatest. At the one extreme are these microscopic perfections, uncountable in their profusion; at the opposite extreme is the whale, a hundred feet long and weighing 200 tons. We must stand at a height to realise the immensity of a whale; we must peer through the microscope to grasp the small proportions of the others.

But how important is the tiny thing! We talk of Emerson's little poem about the mountain and the squirrel, and the retort of the merry little fellow that if he could not carry mountains on his back,

neither could the mountain crack a nut; and we say to ourselves that the animalcules can make mountains as well as perky squirrels crack their nuts.

Yes, limestone, chalk, marble, and many other rocks were all once alive. Diatoms, radiolaria, foraminifera, grow patterned shells of silica or carbonate of lime. They live and die in billions, and their little shells, welded by time and tide have been raised so high during thousands of centuries that mountain ranges have been formed from their remains.

If Time could run backwards we might see such marble statues as the Venus of Milo, the Laocoon, Michael Angelo's David, and the lost works of Phidias dissolve into life, and rearrange themselves into myriads of living specks from the water, perfect with muscular organism, with blood and appetite and sensation within shells exquisitely carved by the chisel of Nature.

All kinds of life are in the waters. There are the tiny specks of living jelly which stand to us as the nearest examples we know of what all types of life must have come from long ago—protozoa, mere pulsing mites of living matter. They reach maturity in less than an hour, then divide in halves, so that one becomes two, two become four, four become eight, and so on, until at the end of 24 hours, one may have multipled into a million.

THE ASTONISHING WAY IN WHICH A LIFE GOES ON AND ON AND ON

That is an example always cited as a sort of immortality, the same life extending and ranging on in this amazing way, age after age. Of course, death comes every hour to billions of these amoebae, as they are called, or in a few weeks all the waters would be solid with them.

Everything is food for something else, from diatom to dolphin, and each type has some part to play. Such things as diatoms are believed to have an important business in creating oxygen for the waters, as are the water weeds which we put for the same purpose into an aquarium.

These lesser forms, the diatoms, the animalcules, with swarms and swarms of eggs and minute fish and crustaceans, make up the diet of larger forms, and the larger forms are food for herrings, mackerel, salmon, and—whales.

The sea has its rhythms, not yet explained. We know that sunlight brings a colossal increase of the lowlier types, so that they colour the waters for hundreds of miles—giving the Red Sea its name, for instance, from the colour they bestow on it in their seasons of abundance. And, as this food supply rises, so the larder of the greater fish is enriched. If fish hatch out when the supply is absent, they die, so that sunshine promotes health and harvests not only ashore but in the ocean.

THE MYRIADS OF SMALL CREATURES THAT MAKE THE SEA LIKE MOLTEN SILVER

Great variety and beauty of pattern mark the shells of the animalcules, but that is not the chief wonder. Some of them glow at night with phosphorescent light. We have luminous glow-worms, centipedes, and other brilliant insects on land, but we have nothing like the noctilucae of the sea, which abound in such myriads that sometimes at night, as waves rise, as a ship's prow cuts the waters, the sea seems to catch fire, and the ship seems to move on molten silver. The unthinkable swarms of these little animals, thickly clustered in every inch of sea, have kindled their glowing torches, that is all.

Not to them alone is this gift granted. Down in the gloom, weird fishes, lean, with stomachs like great nets that enclose victims actually larger than themselves, and with teeth like rakes of bone, have also this wondrous light. They light their head-lamps in the dark, whether to see other fishes, or to lure other fishes to their terrible jaws we know not. But they do it, and there is an octopus in tropical waters which has a glow-lamp like an electric torch, by which the fantastic horrors of this monster, clawed like a tiger, are revealed where the tide swings soundless about his rocky home.

We have glanced at the importance of the diatoms in adding oxygen to the sea. Water creatures, though generally they breathe in a way different from mammals, must have oxygen.

NATURE'S CLEVER DEVICE FOR HELPING THE FISHES IN THE WATER

Man can obtain oxygen from water, but only by an elaborate and costly process; water creatures take it out of the water and pass it into their bodies as easily as we inhale it. The more active and ambitious the form, the more its demands for this vital principle of life. The presence of a swim-bladder is an index to the life the creature leads.

The flat fishes, loiterers on the oozy bed of the sea, have no such organ, but fishes which make great journeys at high speed, all carry this passport to efficiency. This

swim-bladder possibly serves a double purpose. In part it may be Nature's anticipation of the ingenious mechanism which man has worked out for regulating the depth of a submarine in the sea. In part it is a reservoir for the source of energy.

The air-bladder, as it is commonly named, does not contain air, but mainly oxygen, mixed with slight traces of carbon and nitrogen. This reserve store of oxygen can be drawn on instantly if need arises for some great muscular effort, such as catching prey or escaping capture. Associated with this method of storage is another curious one, the dark colouration of the flesh.

The dark colour of the salmon, mackerel, and tunny, is simply stored energy made visible. These fishes are tremendously powerful swimmers, speedy, far-voyaging, enduring. The colour we see in their flesh is haemoglobin stored in the muscle, ready to be changed into energy at need.

But it will be objected that not all fish keep to the water, and that is so. There are certain fish which have lungs as well as gills. The mudfish, for example, coils itself up in a ball within a clod of mud and sleeps away the season when its native river is dry. In that clod it can be carried unharmed round the world.

THE FISH THAT PACKS UP MOISTURE AND GOES ON A JOURNEY BY LAND

Cat-fish can store up air in a wonderful way; the climbing perches, which leave their ponds and climb trees, have a complex form of gills in which they can seal enough oxygen-giving moisture to furnish them for their land travels. And there are fishes of the goby tribe which can skip about the mud with all their bodies exposed to the air, except the tail, which must remain immersed or moistened to permit its owner to continue alive.

It is an interesting question how colour came into the life of the waters, and what its purpose is. Evolution is progressive, and Nature sets us all an example in her steady advance towards the attainment of the beautiful. The average fish is perfect in grace and outline, in silvery mail, in grace of movement. We cannot understand why sea gardens should be lovely with vegetation, why coral islands and reefs should be like little dream cities of exquisite hue, set beneath the sea. We cannot imagine the purpose of the colours with which the cowry is lavishly endowed. There is not one more exquisite on any canvas by an Old Master than those which adorn the soft repulsive body of these sluggish creatures in shells; yet the gift is, so far as we can see, entirely wasted in the dark waters, hidden by the animal's own structure.

THE RAINBOW FISH THAT LURES ITS ENEMY TO DESTRUCTION

Superb colours adorn many of the fish, and here we do get a clue to purpose. Those most highly-coloured are generally unfit for human food. In some cases we find that the dazzling beauty is a decoy fish, which, when pursued, darts into the interior of a massive sea anemone, followed by its foe. The little rainbow fish is unharmed in that gloomy fleshy cavern, but the fish which pursues it is paralysed and digested by its host. The handsome lure remains inside while digestion takes place, but afterwards escapes.

That is an outstanding example of cooperation, and the waters teem with them. The hungry shark has its guide, or companion, in the little pilot fish which precedes or follows it, as the hyena precedes or follows the lion. The hermit crab, housing itself in a discarded whelk shell, enjoys a partnership with a sea anemone, which it carries about with it, at once a mask and a bait. The oyster is sought by a parasite, and covers the parasite with nacre, the marvellous fluid which hardens into the pearl.

Of the modest river mussel there is a still stranger tale to tell. The pearl is a tomb; the mussel is a nursery. A little fish called the bitterling seeks out the open shell of the mussel and drops eggs there. In the folds of the mussel's mantle the eggs hatch into fishes, and the shellfish carries the load for a month or more, when the intruding infants escape into the water and await their time and a nursing mussel for their own eggs.

HOW THE MUSSEL AND THE BITTERLING IMPOSE ON EACH OTHER

But the mussel puts her little ones out to nurse with the bitterling. These cling, and as they grow they cause an irritation on the skin of the fish, so that abnormal growth is promoted and the skin grows over the mussel. So housed, the baby mussel goes riding to and fro, part of the body of its host. At the proper time it leaves its living home, drops into the water, settles down with millions of other mussels, spins a cable of silk, and anchors itself to stones or piles so securely that engineers sometimes throw thousands of

mussels on the masonry of which they make a breakwater, knowing that the mussels will bind the blocks more securely than cement.

Just as we have animals which, falling short of true flight, have reached the parachute stage, so in the midst of the sea we have fish, not unlike slim greyhound herrings, which, with the water as a springboard, leap into the air and fly 150 feet at a time. Their fins are greatly lengthened for the purpose, so they must have been air-skimming for ages. These aerial feats of the flying fishes are probably often the outcome of sheer delight and play, matching the reeling and tumbling of the happy swifts and swallows; but danger must have been the primary impulse out of which these extraordinary evolutions in the air were begun by the flying fish. Life in the waters is one unending round of danger. Nearly all fishes are flesh-eaters, and therefore their life depends on their killing other creatures.

Now, as we have often had an opportunity of seeing, Nature takes notice of the perils to which her children are exposed. The greater the danger, the more Nature drives a species to seek to multiply. And nowhere do we see such enormous outputs of potential life as in the waters.

HOW NATURE ADJUSTS THE BALANCE OF LIFE IN THE WATERS

In some cases it would seem as if no number of eggs, however great, sufficed to overcome the prospect of extinction. In such conditions Nature has decreed that the mother fish shall not lay her eggs broadcast, but shall retain them in her body so that they may safely hatch there. Sharks are born alive, powerful young cruisers from the instant of birth; and some of the rays, certain surf-haunting perches, the blennies, these and a few others incubate their own eggs.

The rule on land is that animals which produce their eggs alive are responsible for only a small number, but the totals in the water are enormous, even for those in which the eggs are not put forth. A blenny may give birth to over 200 young ones at a time, one of the haddocks may mother a thousand little haddocks at once. The great shark, with fewer foes to fear and all the sea animals to feed on, produces but a few young at a time.

In the majority of cases fishes lay eggs and for the most part trust to chance to bring them to maturity. Of course they do not all reach the desired goal; if they did, navigation by man would become impossible in a single summer. When salmon are running in great numbers up certain Canadian and other rivers, it is not uncommon for steamers to be brought to a standstill by the press of fish, their propellers unable to move.

THE OYSTER THAT MAY LAY SIXTY MILLION EGGS IN A YEAR

That would be the case in every sea and every river if the life spread on them every year were not as a banquet for the consumption of all comers. For a mother salmon lays 1000 eggs for every pound of her weight, and she may weigh fifty pounds. The eel will lay perhaps ten million eggs. The ling is a veritable miracle in the number of its eggs; over 28 millions have been found in the body of a ling weighing 54 pounds. A turbot has been known to have nine million eggs, a cod nearly eight millions. The hard roe which we like or dislike in a herring may contain 50,000 eggs. The oyster, which becomes an adult in three years, is said to be capable of laying 60 million eggs a year.

Now, all that Nature demands from a single pair of parents, no matter to what order they belong, is that they shall, at the end of their lives, leave two of their kind to take their places, and it is because of the risk of this not happening, of a species being slowly driven to extinction, that this enormous fruitfulness is necessary. If the method changed; if it became safe for all sorts of fish only to produce one or two young, or as few eggs as birds, life as a whole in the waters would vanish. The eggs and larvae of all sorts of marine creatures are the natural food of other species of fish; the eggs and tiny baby fish and crustacea for the smaller tribes, the smaller tribes themselves for the greater fish and other animals, right away through the whole scale until we find the island-like sperm whale living almost entirely on enormous sea squids.

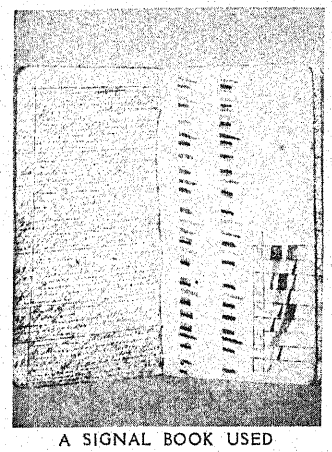
THE IMPULSE AND GUIDING FORCE OF THE CREATURES IN THE DEEPS

There is room for all species and for unthinkable populations of all species. It is numbers, not intellect, which counts here. Intelligence is at a discount in the waters.

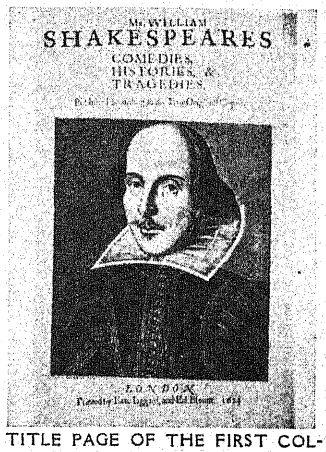
Instinct is the impulse and the guiding force of the creatures whose way is in the midst of the waters. The realm of the deeps abounds in fascination, wonder, charm, and horror, but the qualities which made the mammals supreme are not there.

A PICTURE MUSEUM OF HISTORY

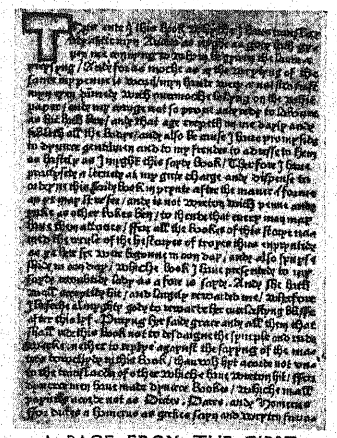
We give in these pages photographs of fifty interesting things bearing on the history of the world. Many of them are to be seen in Museums; some of them are in private collections.



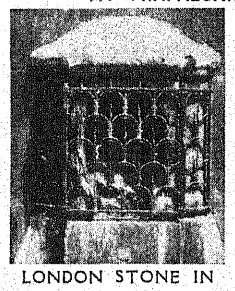
A SIGNAL BOOK USED AT TRAFALGAR



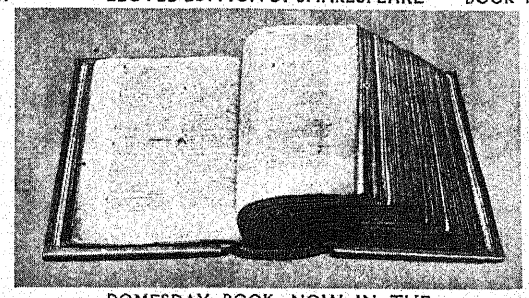
TITLE PAGE OF THE FIRST COLLECTED EDITION OF SHAKESPEARE



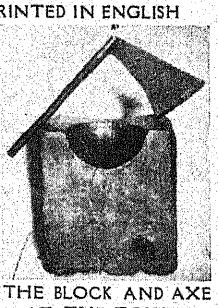
A PAGE FROM THE FIRST BOOK PRINTED IN ENGLISH



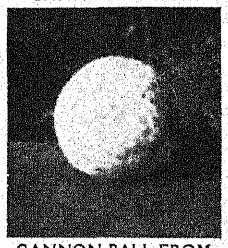
LONDON STONE IN CANNON STREET



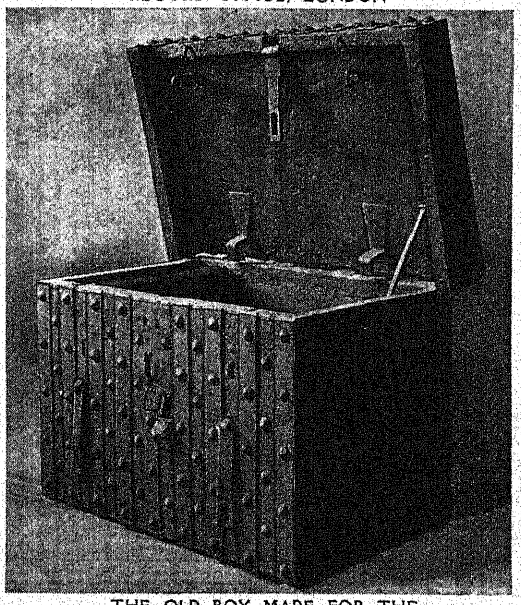
DOMESDAY BOOK, NOW IN THE RECORD OFFICE, LONDON



THE BLOCK AND AXE AT THE TOWER



CANNON BALL FROM THE SPANISH ARMADA

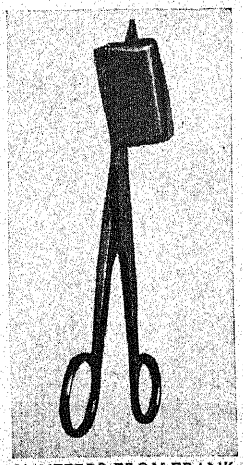


THE OLD BOX MADE FOR THE DOMESDAY BOOK

TORCH EXTINGUISHER IN THE ADELPHI

MAGOG IN THE LONDON GUILDHALL

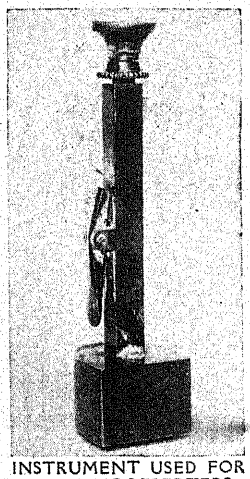
GOG IN THE LONDON GUILDHALL



SNUFFERS FROM FRANKLIN'S EXPEDITION

THE FINGER PILLORY AT ASHBY-DE-LA-ZOUCHE

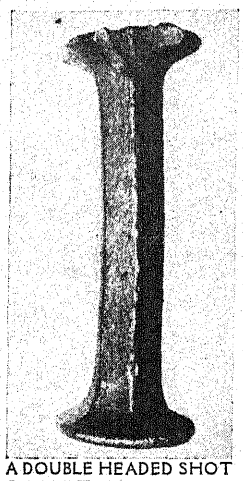
THE WAX EFFIGY OF QUEEN ELIZABETH IN WESTMINSTER ABBEY



INSTRUMENT USED FOR BRANDING DESERTERS

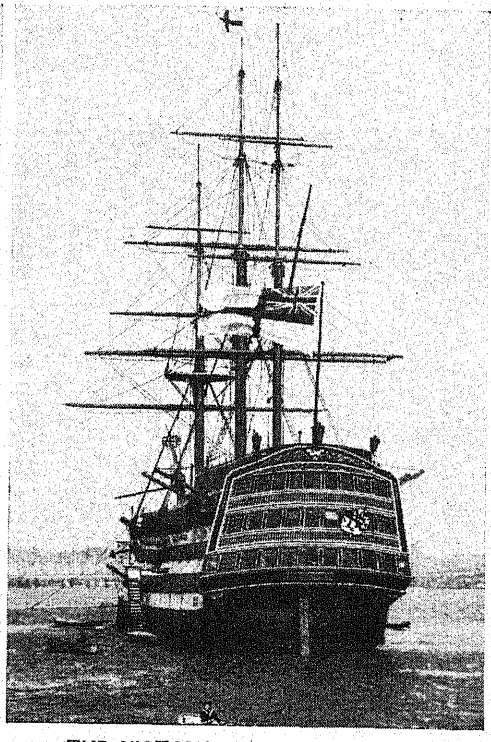
ST. AUGUSTINE'S CHAIR IN CANTERBURY CATHEDRAL

TRAITOR'S GATE, THROUGH WHICH CAPTIVES ENTERED THE TOWER OF LONDON FROM THE RIVER

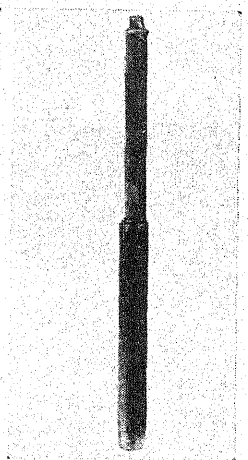


A DOUBLE HEADED SHOT FIRED AT THE VICTORY

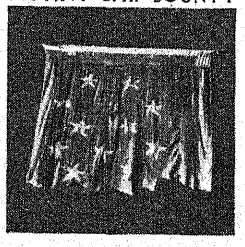
THE OLD PORTER'S REST IN PICCADILLY



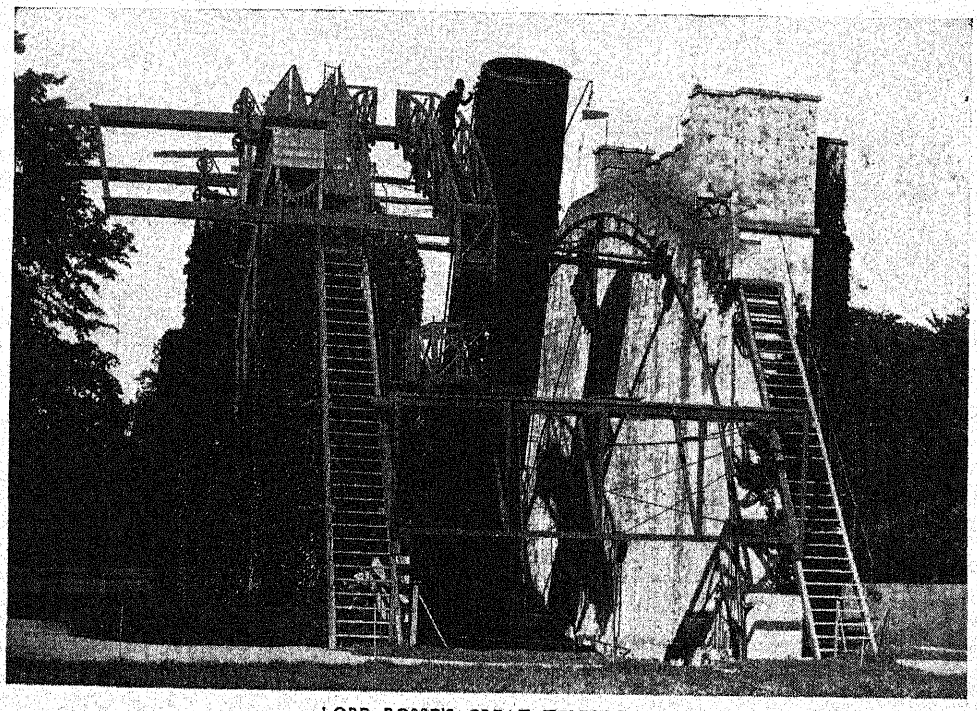
THE VICTORY, NELSON'S FLAGSHIP AT TRAFALGAR



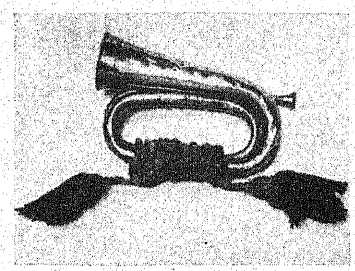
TELESCOPE OF THE MUTINY SHIP BOUNTY



FLAG OF THE U.S. FRIGATE CHESAPEKE

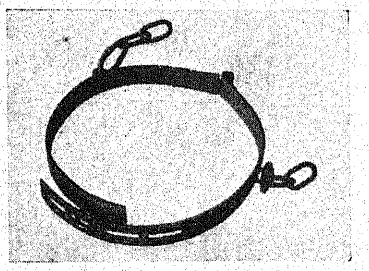


LORD ROSSE'S GREAT TELESCOPE

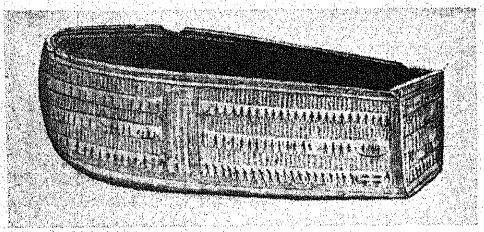


THE TRUMPET WHICH SOUNDED THE CHARGE AT BALACLAVA

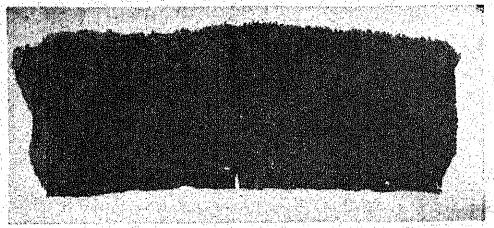
SIGN OF BOAR'S HEAD TAVERN, KNOWN TO SHAKESPEARE



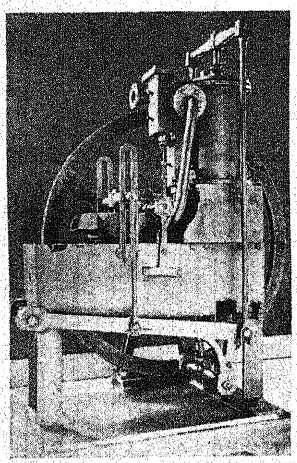
THE STEEL BAND THAT FASTENED CRANMER TO THE STAKE



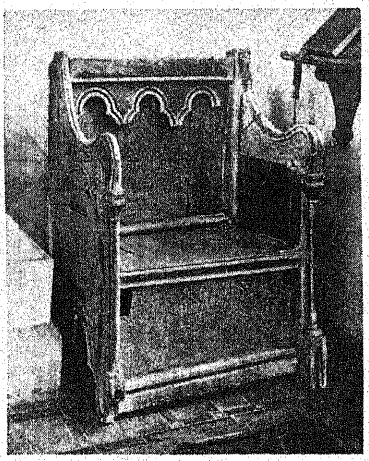
COFFIN OF SETI THE FIRST IN SOANE MUSEUM



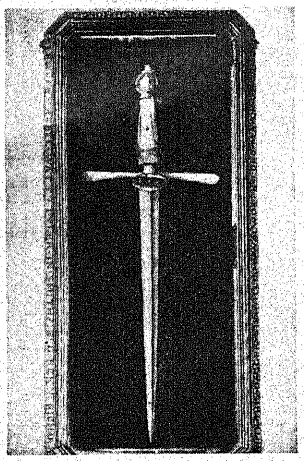
A PIECE OF THE STANDARD CARRIED BY PIZARRO



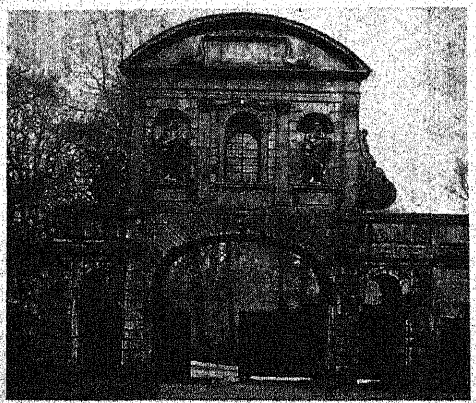
THE ENGINE OF HENRY BELL'S STEAMBOAT, THE COMET



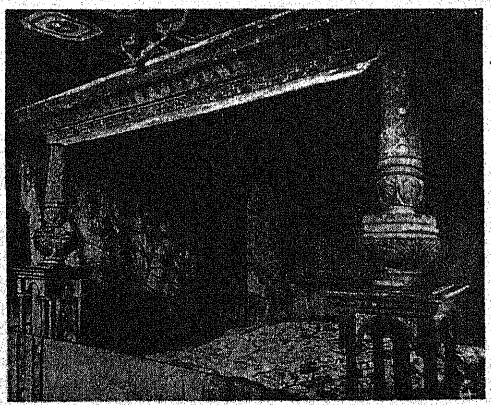
THE ORIGINAL FLITCH CHAIR IN LITTLE DUNMOW CHURCH



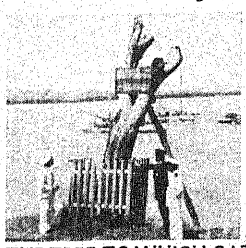
THE DAGGER WITH WHICH WAT TYLER WAS KILLED



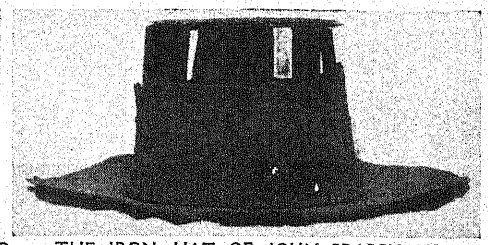
OLD TEMPLE BAR, BUILT BY WREN



THE GREAT BED OF WARE, NOW AT RYE HOUSE

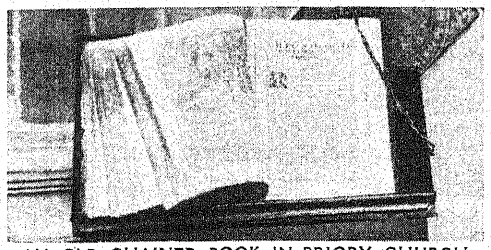


THE TREE TO WHICH CAPTAIN COOK TIED HIS SHIP

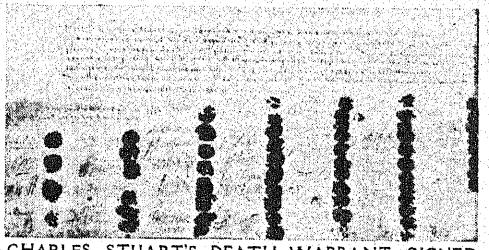


THE IRON HAT OF JOHN BRADSHAW WHO SENTENCED CHARLES STUART

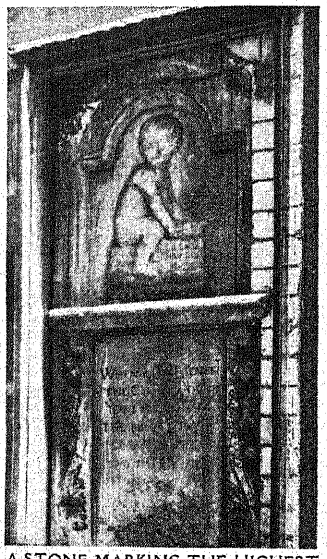
RELICS FROM THE TOWER OF LONDON FIRE IN 1947



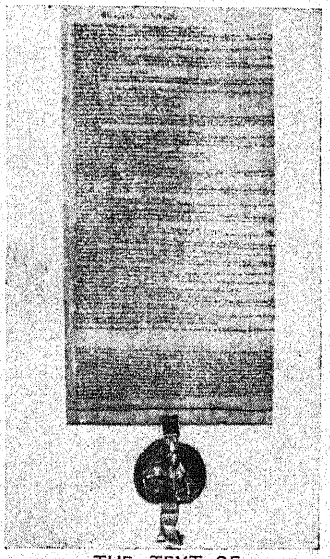
AN OLD CHAINED BOOK IN PRIORY CHURCH GREAT MALVERN



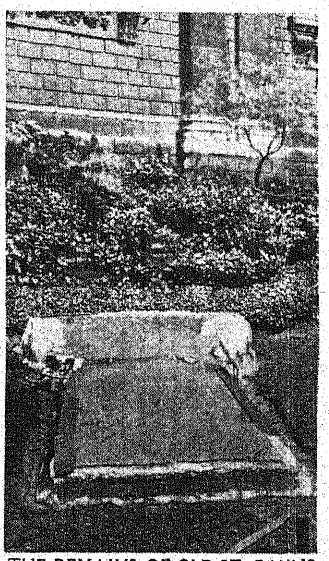
CHARLES STUART'S DEATH WARRANT, SIGNED BY CROMWELL AND OTHERS



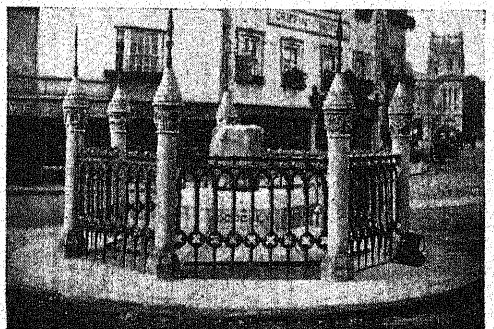
A STONE MARKING THE HIGHEST POINT IN LONDON CITY



THE TEXT OF MAGNA CARTA

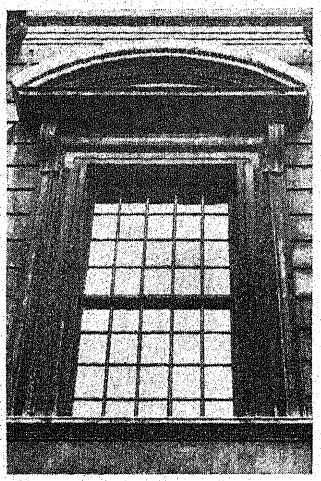


THE REMAINS OF OLD ST. PAUL'S CHAPTER HOUSE

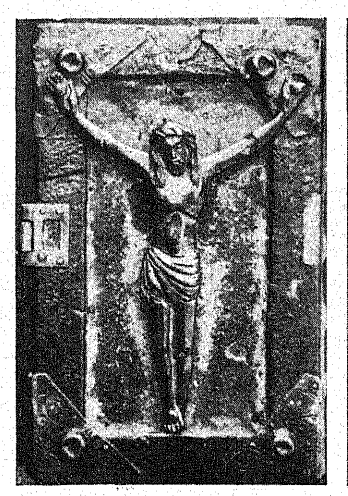


THE OLD CORONATION STONE AT KINGSTON

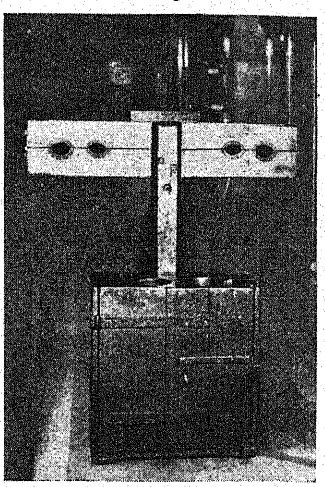
WREN'S MODEL OF ST. PAUL'S



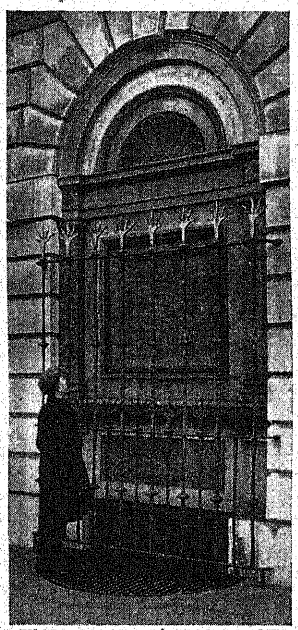
CHARLES STUART'S WINDOW IN WHITEHALL



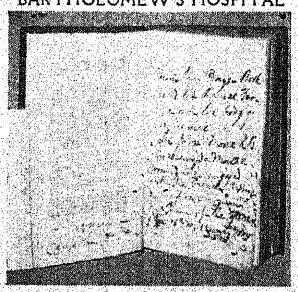
THE BOOK ON WHICH THE CORONATION OATH WAS SWORN



A WHIPPING POST FROM OLD NEWGATE PRISON

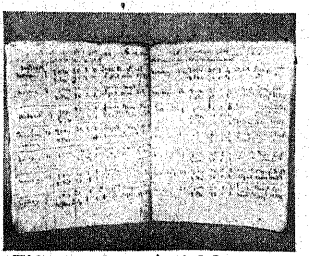


THE MARTYRS' STONE, ST. BARTHOLOMEW'S HOSPITAL

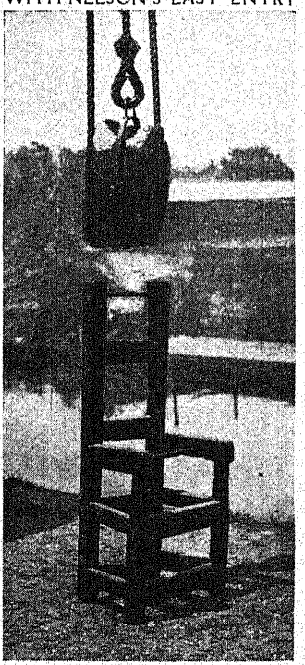


PRAYER BOOK USED AT THE BURIAL OF SIR JOHN MOORE

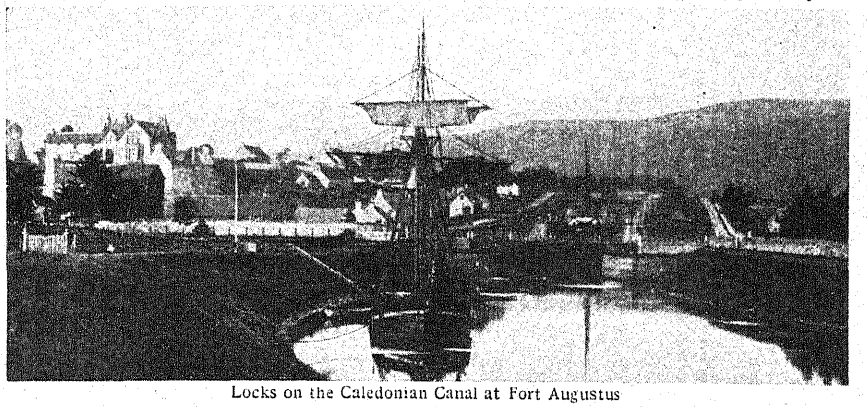
FIGURE-HEAD OF THE GOLDSMITHS' COMPANY'S STATE BARGE



THE VICTORY'S LOG BOOK WITH NELSON'S LAST ENTRY



AN OLD DUCKING-STOOL AT FORDWICH, IN KENT



Locks on the Caledonian Canal at Fort Augustus

CANALS AND HOW THEY WORK

A CANAL is an artificial waterway. Unfortunately, we are not as familiar with big canals in Britain as we ought to be, for we have greatly neglected the making of big waterways, which ought to play a much greater part than they do in our transport system.

Britain is a small island whose shores are lapped by the waters of the Atlantic, the North Sea, and the English Channel, and so small is our area that no part of our island is more than about a hundred miles from a seaport. Therefore, we are not so dependent on canals as countries in the heart of great continents.

But the fact that we have the sea all round us, which is even better than if Germany were able to cut a great canal all round her borders, is no reason for scorning the advantages of a fine canal system.

Sometimes a canal is made by improving or enlarging a natural waterway, so that we get what may be called a canalised river. In other cases a clean cut is made where Nature gives little or no assistance, and then tremendous feats of excavation have to be undertaken.

The channel of an artificial waterway is made with sloping sides and a flat bottom. It is very important to prevent falling-in of the sides, and they are often faced with stonework. The canal is made watertight by lining it with what is called a puddle of clay—clay cut into slices and well mixed with water. In this condition it is applied in layer after layer for a thickness of several feet. Big waterways are sometimes lined with concrete.

Let us note one very important difference between the making of railways and of canals. A railway engineer can use a certain slope or gradient, for a railway train can be drawn uphill or downhill, but a water engineer has to work on the level, because water always comes to a level.

A canal, therefore, must either be one dead level throughout its length, or divided into sections of different levels, each section being dead level, connected to its neighbour by an apparatus enabling a boat or ship to be moved up or down from one level to another. This apparatus is called a Lock. The immortal artist and scientist Leonardo da Vinci is said to have been one of the first engineers to make a lock.

A lock is a watertight chamber constructed at the end of the lower water level, with its top reaching a little above the water surface of the upper water level. At each end of the lock are heavy gates, which can be moved only when the water level is the same above and below. These gates meet at an angle upstream. The

water, pressing against the gates, shuts one against the other, and so makes them watertight. There are small sliding gates or sluices in the lock gates or walls near the bottom, which can be opened to allow water to pass through, although the main gates remain shut.

How a boat goes upstairs to a higher level

Suppose a boat, ascending the canal, arrives at a lock on its way to the upper level. First, assuming the lock to be full, the upper gates are closed, and after the lock has been emptied the lower ones are opened. The boat then passes into the lock chamber, and when it has entered the lower gates are shut. The position then is that the boat is still on the lower level, but locked in between the upper and lower gates.

Next the sluices in the upper gates are opened, and so water pours into the lock.

As the lock fills with water the boat rises until, the lock being full, the boat has risen to the level of the water of the next section. Then the upper gates are opened and the boat passes out.

It is a very simple and efficient idea, and it will be understood what a great difference it made to canal engineering when once it was invented.

It is one thing to cut a canal and another thing to fill it with water. To maintain a water supply sufficient to carry a canal through the driest seasons is sometimes no easy matter. If the engineer is unable to harness a natural stream to fill his canal, it becomes necessary to fill great reservoirs to keep it full. In these respects each canal is a separate problem, the solution of which depends entirely on local circumstances.

A canal which changed small places into flourishing communities

In Britain a great deal was done, before the invention of railways, to carry goods on artificial waterways. In 1761 the fine Bridgewater Canal was cut from Worsley to Manchester. The Duke of Bridgewater employed a clever engineer, James Brindley, to do the work. Before the canal was cut Manchester had only 20,000 people, while Liverpool was a small village. The Bridgewater Canal helped to change two small places into great and flourishing communities. The canal still exists, and its success led to the construction of many more waterways. North, south, east, and west canals were made with great vigour, and the British canal system as we know it today was for the greater part made between 1761 and 1830, in the time of the beginning of railways.

The canals were at first very profitable, and the companies which built them paid big dividends to their shareholders. Roads were bad, and, therefore what we should now call slow progress on a canal was, to the people of the eighteenth century, very rapid work. The water road easily beat the land road. At the end of the eighteenth century you could sometimes carry by canal for a pound what would have cost five pounds to carry by road.

At that time, also, the canals could even beat ships sailing along the coast, because the steamship had not yet been invented, and sailing ships were slow and uncertain. The barge, travelling slowly but surely on the canal, could often beat the sailing ship tacking along the coast from port to port. Indeed, there is no doubt that, before the railways began their amazing growth, after 1830, British canals played a great part in building up British trade. But the railways came, and canal development stopped. Since 1830 nothing has been done with British canals save the making of the fine Ship Canal which has done so much for Manchester.

The network of waterways running through England and Wales

The United Kingdom has now about 4600 miles of canals or canalised rivers, of which about a third are owned or controlled by the railway companies. Altogether there are a very large number of canal authorities, and this makes it very difficult to effect such great improvements as the country needs.

It is true that a small cargo boat can pass uninterrupted through most of the 4000 miles of waterways which exist in England and Wales, but many journeys would have to be of a very roundabout character. Only the smaller part of British canals have locks large enough to accommodate a common barge. In England and Wales there are nearly 1200 miles of narrow canals with locks under 14 feet wide. Such waterways are quite inadequate to do the work which might be done in carrying heavy goods cheaply. Only an insignificant fraction of the food raised by our farmers is carried on the canals. Small waterways run through great agricultural counties, but can do little or no work for them. And not only food, but coal, metals, timber, stone, slates, bricks,

gravel, cement, and many other heavy articles ought to be more freely transported by inland waterways. But how can this be done when few of our canals allow a cargo of over sixty tons to be transported for a long distance?

A few years before the war a Royal Commission recommended that great changes should be made. They said they would like to see all the canals under a waterway board, able to make them worthy of the country. They also recommended that four great canals should be made by greatly widening and improving existing routes. These four main routes were:

Birmingham and Leicester to London: from the Midlands to the sea on the south-east.

Leicester and Nottingham to the Humber: from the Midlands to the sea on the north-east.

Birmingham and Wolverhampton to the Mersey: from the Midlands to the sea on the north-west.

Birmingham and Wolverhampton to the Severn: from the Midlands to the sea on the south-west.

These four routes form a great cross joining up the Thames, the Humber, the Mersey, and the Severn

THE SKILL OF MAN IN TRANSFORMING THE FACE OF THE EARTH

The idea was to make the canals much bigger, so that they could be navigated by hundred-ton barges. The cost of this would not have been very much—about £18,000,000. The war has since made everything dearer, but it still seems worth while to carry out a proposal (or a more ambitious scheme) which would do so much to relieve unemployment, in addition to improving transport facilities.

But what canals can do for Britain, much as it is, is little compared with what they can accomplish in countries which stand sorely in need of access to the sea, or in countries where stretches of land interpose between seas or oceans and bar the passage of ships.

The audacity of man's mind in dealing with the Earth on which he lives has perhaps never been better illustrated than in such cases as those of the Suez Canal and the Panama Canal, in which the entire course of commerce has been changed by triumphs of engineering skill.

Germany has some fine natural waterways, and the carrying power of her rivers has been much increased by linking them up with canals. She has over 6000 miles of really important waterways, capable of being navigated by very large vessels. Big barges, each carrying hundreds of tons, move on them under their own power. The effect on German industry has been indeed remarkable. Along these great canals there have grown with amazing rapidity splendid industrial establishments, fed by raw materials cheaply transported. It is not too much to say that the development of canals in Germany has accounted for an appreciable part of her modern industrial growth, and that that growth could not have taken place without it.

THE GREAT CANAL THAT HAS HELPED ON THE TRADE OF GERMANY

To take one case out of many, the Dortmund-Ems Canal, connecting the mining and industrial centre of Westphalia with the great port of Emden on the North Sea, was completed in 1899. In the next year 470,000 tons of goods were carried on it. *Two years later this figure had doubled, and in six years it had been multiplied by four.* Such are the wonderful changes which good and cheap transport brings to a nation, and we may well wonder what benefits we ourselves might have secured if the great canal system proposed by the Royal Commission had been carried out before the war.

France, Belgium, and Holland have also done much waterway engineering. Belgium has about 1250 miles of canals, and France 7500 miles of canals and navigable rivers.

Among the great waterways of the world, the Suez Canal will always rank as a brilliant achievement. Anybody looking at a map may see what a narrow neck of land separates the land of Western Asia from Egypt. Comparatively small as it was, that neck compelled ships sailing eastwards from Europe to Asia to circumnavigate Africa, so that a voyage of thousands of miles was made necessary by a neck of land a hundred miles across.

AN EVERLASTING BENEFIT FOR THE COST OF ONE DAY'S WAR

For many years the problem of cutting through this land occupied the minds of engineers, including George Stephenson, and at last the Frenchman, Ferdinand de Lesseps drew up a practical scheme, and in 1859 work was started on it. In about ten years the canal was opened, and it was afterwards much improved. It is 99 miles long and it has no locks. It is cut to sea-level, so that ocean ships can navigate it. Its depth is thirty feet, and it has, of course,

sloping sides, the top being 300 feet wide and the bottom 262 feet wide. It cost nearly £20,000,000 and about eighty million cubic yards of soil were dug out.

It may be noted in passing that big as the cost of the Suez Canal may seem, the Great War often cost as much as £20,000,000 on a single day, a fact which may serve to remind us of many things the world might have done to improve itself with the money wasted on the war.

The Suez Canal made a great difference to European trade, and especially to British trade with the Far East, Australia, and New Zealand. As Britain was the greatest trading and exporting nation, the cutting of the Suez Canal conferred special benefits on that country. We may also note that the British Government is a part owner of the Suez Canal undertaking, and draws a profit from its revenues.

THE MAN WHO TRIED TO CUT AMERICA IN TWO

De Lesseps, who made such a great success of the Suez Canal, formed a greater ambition still—that of cutting through the Isthmus of Panama, the long, thin neck of land joining North America to South America, cutting off the Atlantic from the Pacific, compelling the navigator to go all the way round Cape Horn to pass from one side of America to the other.

A French company was formed to make the canal, and De Lesseps set to work. Unfortunately he failed, and for two reasons. The first of these was that the money of the company was badly used; the second was that the land through which the canal had to be cut was swept with two terrible diseases—malaria and yellow fever. Thousands of men who went out from Europe perished, the canal company became bankrupt. The United States Government stepped in, and, after a revolution in Panama, bought the strip of territory across the isthmus, and decided to do the work itself. And brilliantly America succeeded. The French had aimed at a sea-level canal like Suez; the Americans thought it well to be less ambitious and to save much cutting by making a lock canal, the upper level of which is over 80 feet above the sea.

We take from Arthur Mee's Hero book (published by Hodder and Stoughton) the following account of the great thing these men did at Panama.

The American Government made up its mind to finish the work the Frenchmen had begun. They were to cut a continent in two at the narrow point from Panama to Colon, and let the world's ships sail through. They sent thirty, then forty, then nearly fifty thousand men to do the work, and made a plain man their master.

THE RAGGED LITTLE REBEL AND HIS WONDERFUL ARMY OF PEACE

His name was William C. Gorgas, and this is the manner of man he was, according to himself. Speaking at a Baltimore university, he recalled his boyhood in the time of the Civil War:

> I first came to Baltimore about forty-five years ago—a ragged, barefoot little rebel, with empty pockets and still more empty stomach. My father had gone south with Lee's army. At the fall and destruction of Richmond, my mother's house, with all that she had, was burned, leaving her stranded with six small children. She came to Baltimore, and was there cared for by friends. These memories are vivid with me, and can never be effaced.

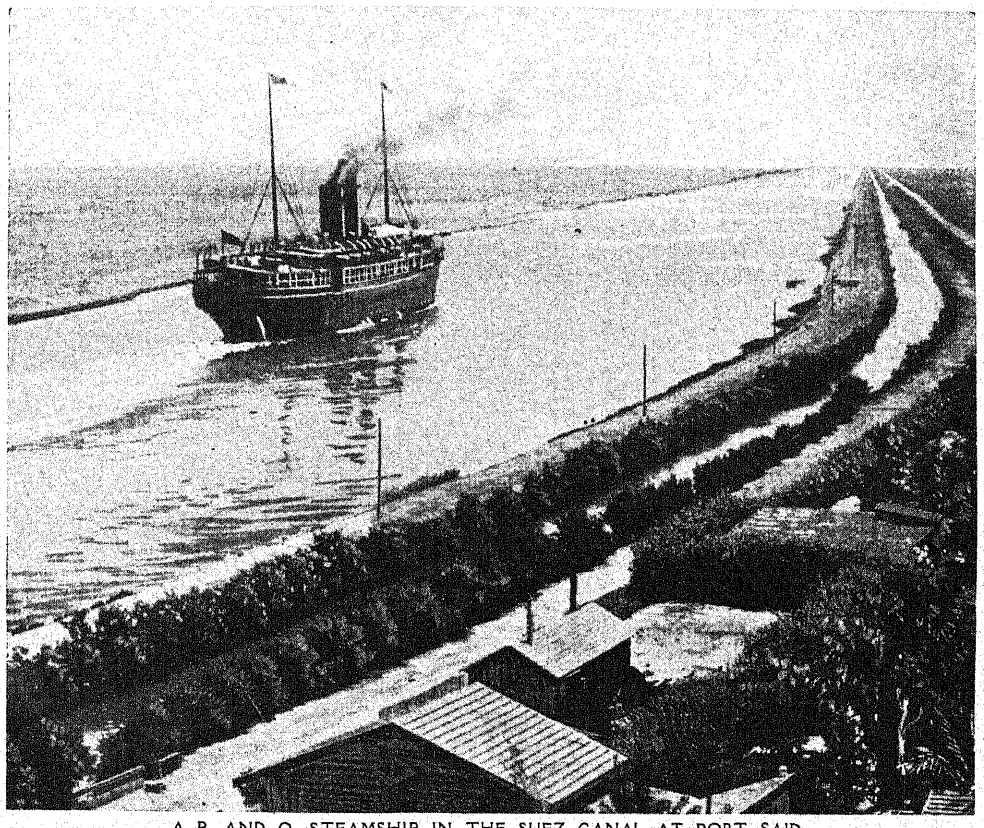
It was Colonel Gorgas—he had been made a colonel by special Act of Parliament, although he was a doctor—who showed the governments of the world what they can do with power when they have done with quarrelling. Armed with the knowledge Major Ronald Ross and Major Walter Reed had given him, he went to Panama and met Stegomyia and Anopheles face to face; he met the authors of malaria and yellow fever, whose discovery (told on page 2627) had laid the foundations for the work he was to do.

THE BATTLE THAT WAS WON BY POURING OIL ON TROUBLED WATERS

He found in Panama a workshop 45 miles long, and his power extended all the way for five miles on each side. Over 450 square miles this plain man from Baltimore had the power of a king, he made the law and carried it out. He had neither guns nor powder, none of the instruments of war; he had simply a fact, and the power to drive it home to everybody who lived in his 450 square miles. He knew that two mosquitoes lived in stagnant pools, and he locked them up while the workmen went on digging. He locked up every pool with oil; he drained or sealed up every ditch; he closed every way that could be found through which the mosquitoes could come. Never was there known before so great a pouring of oil upon the troubled waters; never was there

known so silent a battle between an army of hundreds on one side and hundreds of millions on the other.

On the one side were a few hundred men, doctors and ditchers, drainers and dispensers, oilers and clerks and sanitary inspectors, guarding forty or fifty thousand labourers and their families scattered over 450 square miles in about forty camps and villages. They were doing the biggest piece of engineering that has ever been done on the Earth, digging a way from sea to sea, cutting up a mountain for the sea to pass through, and building huge walls to hold in the sea as it passed.



A P. AND O. STEAMSHIP IN THE SUEZ CANAL AT PORT SAID

On the other side were millions of mosquitoes of the race of Stegomyia and Anopheles, born in still waters but emerging with their powers of death, to fly through every door and window to suck the blood of any human being and poison the life-blood of all Panama, as their ancestors had poisoned it for ages, with yellow fever and malaria.

Our hero was equal to his opportunity. He was worthy of that long line of heroes who had lived and died to give him the knowledge that he knew was power. He had against him all the ignorant little people who are always against the man who knows, but he stood firm, like a strong man with the eyes of the world upon him. He screened up all the houses, and ordered every household to cover up all vessels that held water. He drained lakes and swamps that had never been drained before, and poured out the filth of ages to the sea. He drained every ditch and pond that could be drained; those that could not be drained he oiled, so that the mosquitoes in them could not breathe. He cut grass jungles to the ground, destroyed all vermin, and burned all rubbish. He raised all buildings up above the ground, and covered them with fine wire screens. He screened every train, and on every train he put a hospital car. He made every man in Panama a total abstainer, for he ordered alcohol off the ground. *Fifty thousand strong teetotallers have done the greatest piece of work the modern world has ever seen.*

A marvellous thing it is these men have done, these troops of workmen with their giant machines, with a hundred excavators, twenty dredgers, five hundred locomotives, and five thousand trucks, pumps, elevators, cranes, and tugs. Tremendous machines there were which broke up mountain peaks and carried off enormous rocks, which plunged huge shovels into water and brought up hundredweights of mud, which unlocked a train of fifty waggons at one stroke; and it is no surprise to know that 360 million tons of earth have been moved away, equal to a tunnel through the Earth from side to side. It is no surprise to know that in such a workshop there was a fine spirit of rivalry among the men of the three great divisions—the Central, Atlantic, and Pacific divisions, and that strong men worked like schoolboys to beat the record.

If a machine broke, it was thrown down to strengthen an embankment; if an engine overturned, there was no time to rescue it. There was no time, evidently, for quarrelling or abuse, for Official Circular number 400 gave notice that "the use of profane or abusive language by foremen or others in authority, when addressing subordinates, will not be tolerated."

THE SPLENDID SPIRIT OF THE MEN IN THE WORLD'S GREATEST WORKSHOP

A fine thing it must have been to see this workshop forty-five miles long, with men working in comradeship in a great world-cause, and we can quite understand the spirit of the traveller who was carried away at the sight of it, and wrote:

A region is being shaped anew. Cut, carved, transformed, it has now another form and another outline. Peaks have disappeared, other heights have risen; certain valleys have vanished, others have been born; great rivers have obediently followed the will of man, as in the Arab legend the sea, roaring and foaming, followed the steps of Lalla Muna, the Moroccan saint. And across the yellow virgin earth has at last been opened a deep, monstrous furrow, which the waters now invade. The gigantic shipway passes from sea to sea, and possibly is visible to other planets—a slender, luminous, strange new sign on the old and immutable face of the world.

Yet all this mighty work would have been still undone if the doctor had not been king and used his powers of kingship well. Dr. Gorgas and his men worked in four great ways—they destroyed the homes of the mosquitoes during the larval stage within a hundred yards of all human dwellings; they destroyed all protection for adult mosquitoes; they screened all houses with wire screens; they destroyed all breeding-places, either by draining stagnant waters dry or sealing them with oil.

THE PLAQUE-SPOT THAT HAS NOW THE LOWEST DEATH-RATE IN THE WORLD

There were seventeen districts, each with a chief sanitary inspector, a clerk, and a staff of three experts—one of them wise in mosquito lore; another skilled in ditching, draining, and oiling; and the third a good organiser. Each of these districts had forty or fifty labourers to do the draining, carpenters to keep the screens in repair, and dispensers who went about administering doses of quinine among the workmen. Each inspector was held responsible for excess of malaria in his district.

And this is the work they did in these seventeen districts in one year:

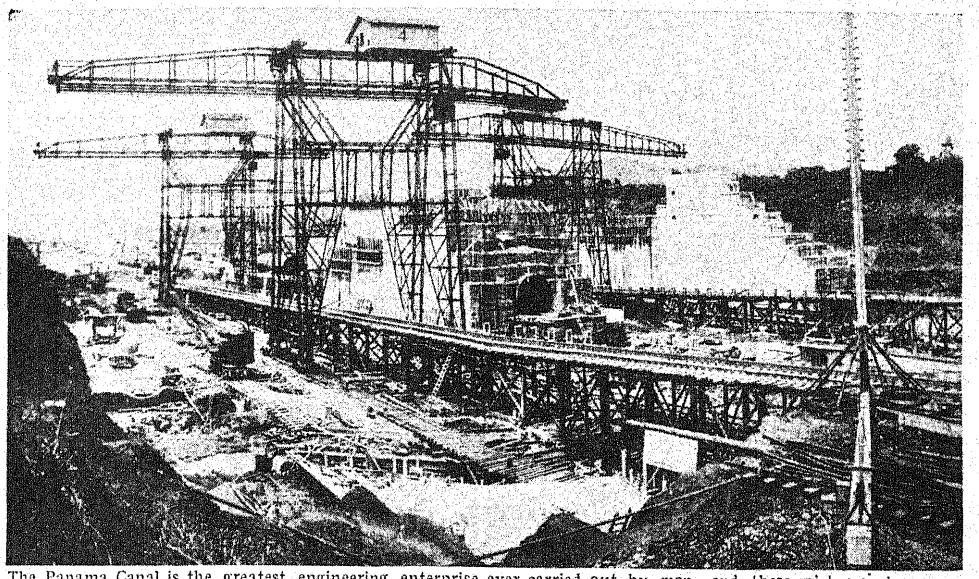
Cut down twelve million square yards of brushwood, drained one million square yards of swamp, cut thirty million square yards of grass, maintained three million feet of ditches, emptied three hundred thousand oil-cans, used nearly three million pounds of quinine, fumigated eleven million cubic feet of house space.

The end of it is that men do not die now in Panama from yellow fever or malaria, that fewer people die in Panama than in New York, and that the death-rate of Panama is now the lowest of any large body of people in the world—less than eight per thousand, and less than three among white Americans. The end of it is also that ships can now sail through America instead of round it, and that all the world knows that any part of the world can be opened to civilisation and the white man.

THE GREATEST SCHOOL-LESSON THAT HAS EVER BEEN TAUGHT TO MEN

It is, perhaps, the greatest school-lesson that has ever been taught to the world, and the cost of it—you will not believe it, but it is perfectly true—has been equal to a halfpenny per man per day. That was the whole cost of Dr. Gorgas and his staff. The world's death-rate is about thirty in every thousand lives; whoever brings that figure down by one saves a million and half lives every year. It is worth a halfpenny per life per day, says Arthur Mee's Hero Book; is it not worth all the money in all the banks that have ever been in the world?

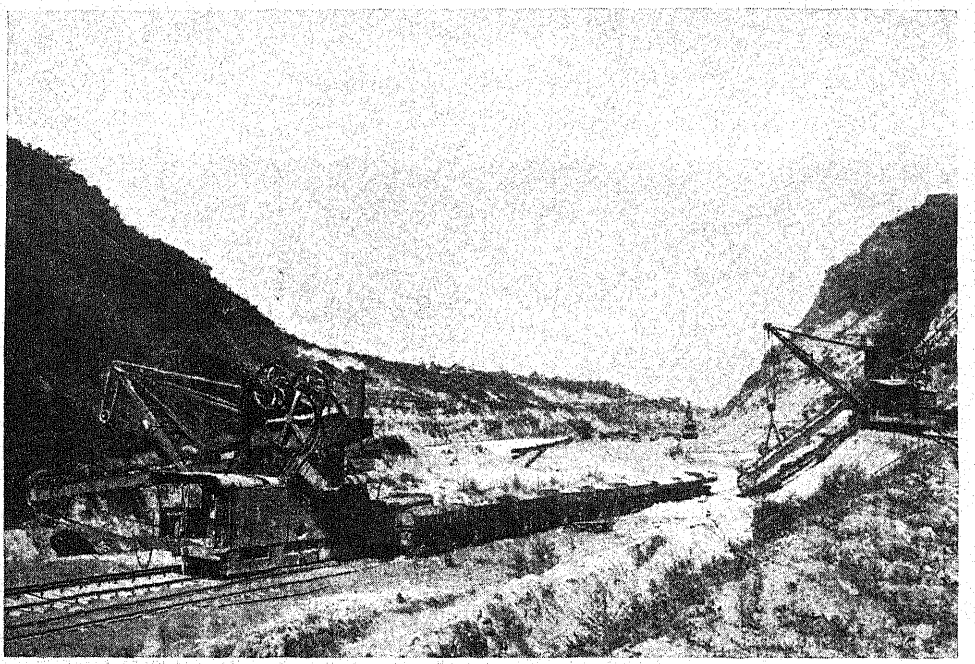
PICTURE-STORY OF CANALS



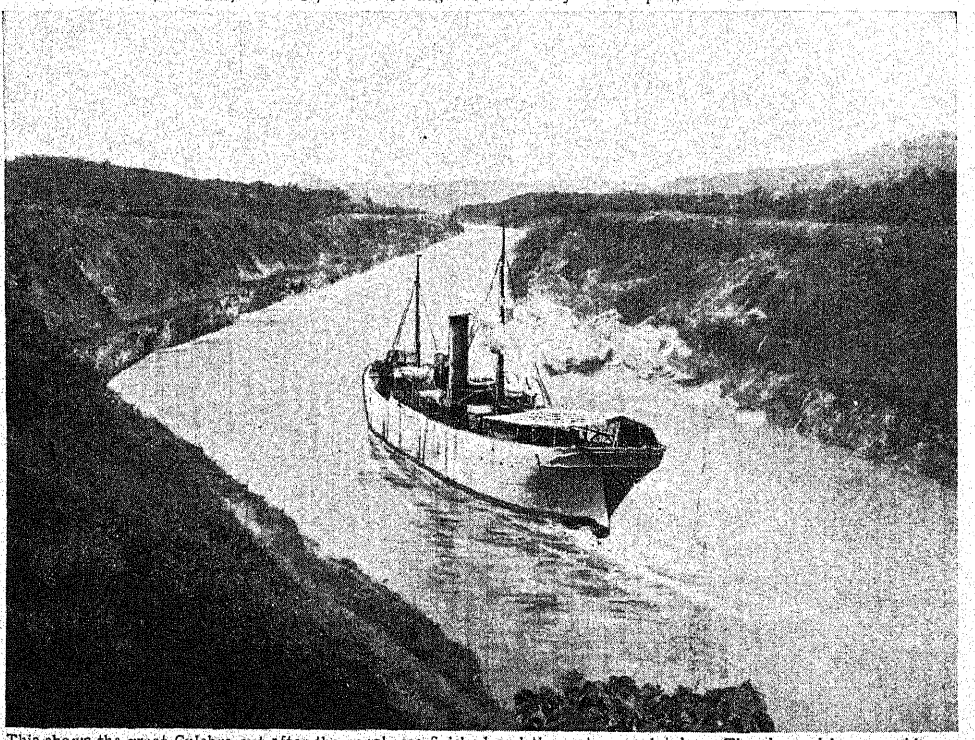
The Panama Canal is the greatest engineering enterprise ever carried out by man, and these pictures give some idea of the gigantic task of linking up the Pacific and Atlantic Oceans. Here we see the construction of the famous Pedro Miguel locks near the Pacific end of the canal, one of the most difficult sections in its whole course.

The greatest feat was the cutting of a channel through the Culebra Mountain. It was realised that the task would be stupendous, but it proved even greater than was anticipated. Over 100 million tons of rock and earth had to be cut or blown away to make a passage for ships through the mountain. Altogether 360 million tons of material were dug out to make the canal. This picture shows the Culebra Mountain partly cut through

THE PANAMA CANAL BEGUN AND FINISHED

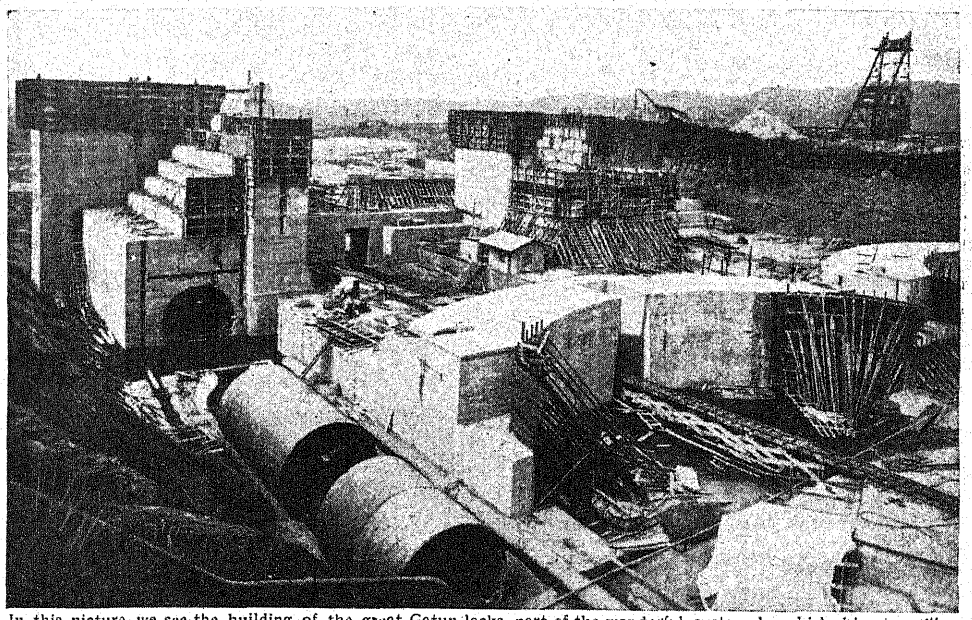


Here is a view of the great Culebra Mountain soon after the Americans began work on it. A million cartridges were used in blasting away the rock. Often during the progress of the work millions of tons of rock would slip down the banks, and this, of course, had to be dug out before any further progress could be made.

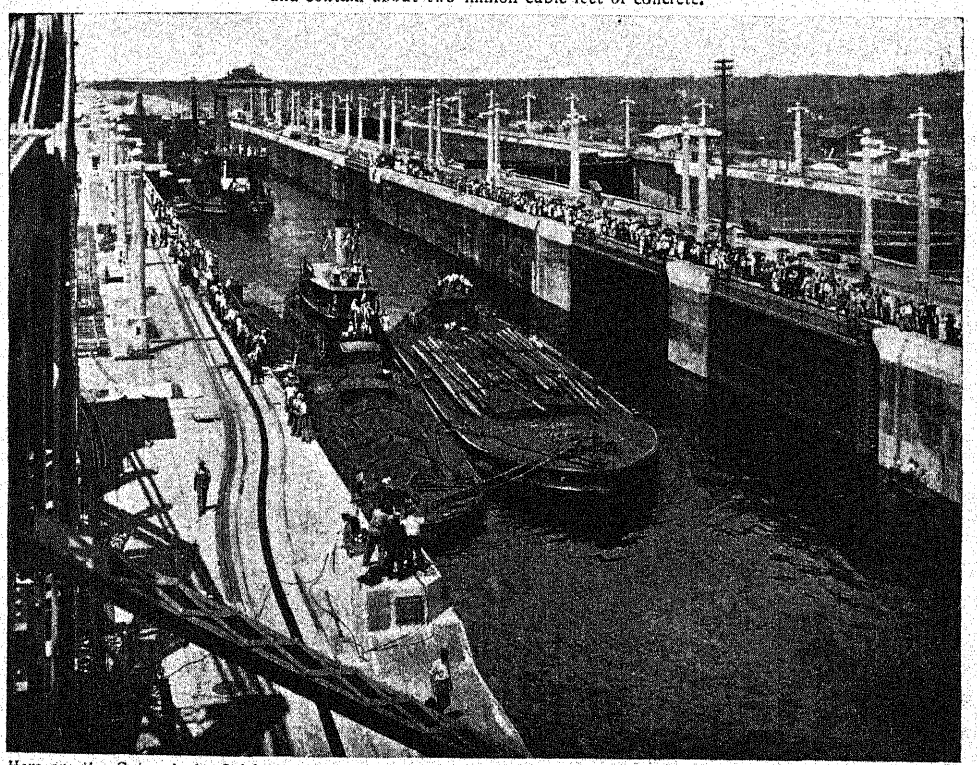


This shows the great Culebra cut after the canal was finished and the water was let in. The channel is very wide, so as to enable the largest vessels to pass from one ocean to the other. The cutting through this mountain is about seven miles long and the canal is 300 feet wide at the bottom.

THE MAKING OF A GREAT LOCK

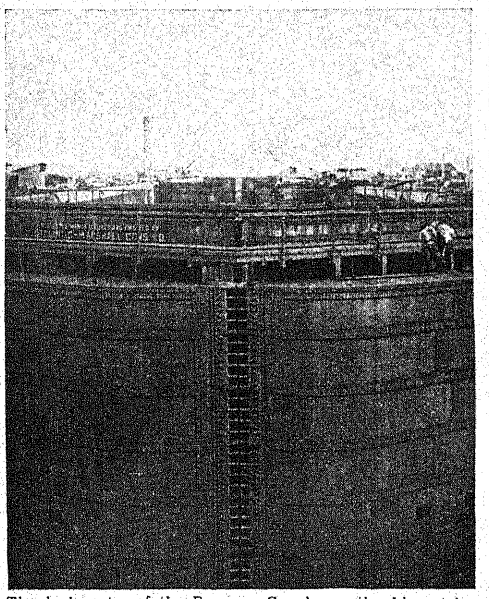


In this picture we see the building of the great Gatun locks, part of the wonderful system by which ships travelling from one ocean to the other go upstairs and downstairs. The massive walls of this lock as completed are 81 feet high, and contain about two million cubic feet of concrete.

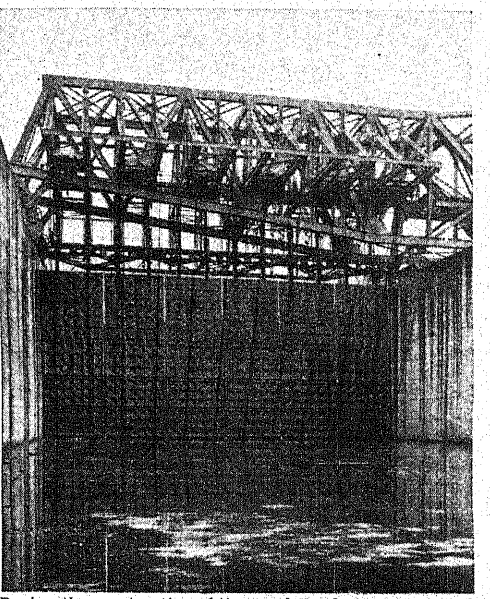


Here are the Gatun locks finished and open for use. No vessel is allowed to steam through; they must all be towed. The gigantic gates which close these locks are worked by very elaborate machinery about half-a-mile from the point of control. The controller has a model of the locks before him on a table, and when he touches the electric switch to work the big locks he sees reproduced on his working model an exact replica of what is going on in the real lock

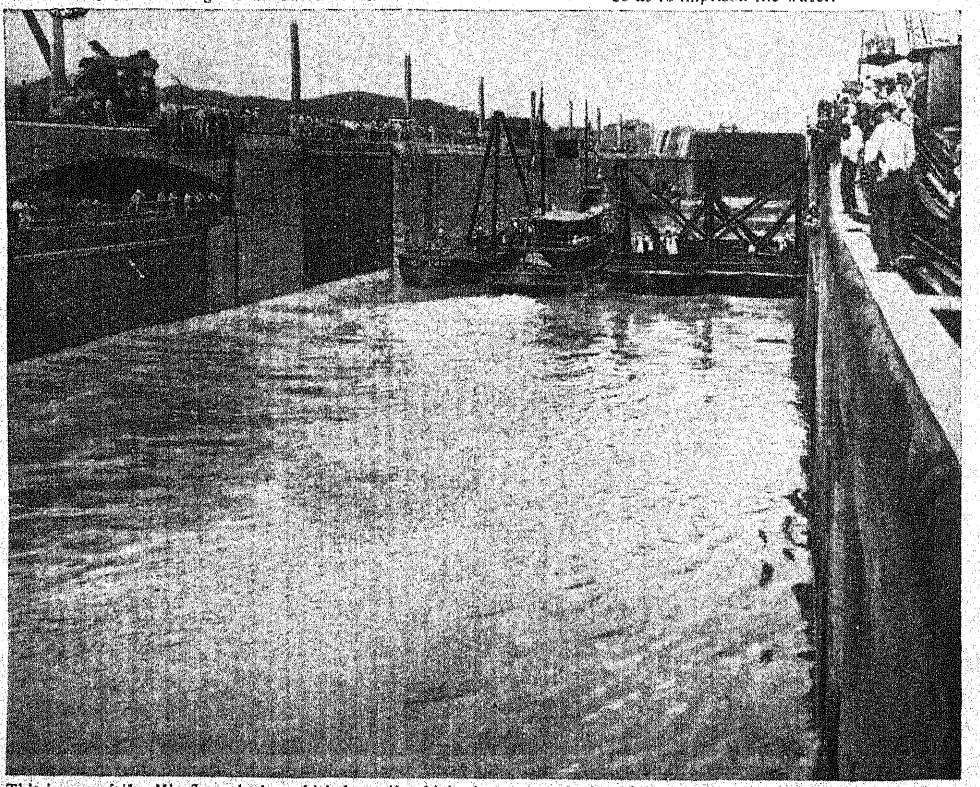
THE GIANT GATES WHICH CLOSE THE LOCKS



The lock gates of the Panama Canal are the biggest in the world. Each has two leaves and each leaf is 65 feet wide, from 47 to 82 feet high, and seven feet thick. This is one of the gates at Gatun locks.

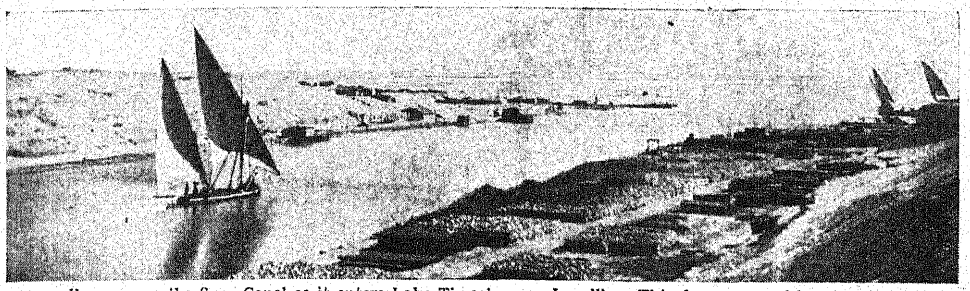


During the construction of the canal the locks were tested with emergency dams, one of which at the Pedro Miguel locks is shown here with all its gates lowered in position so as to imprison the water.

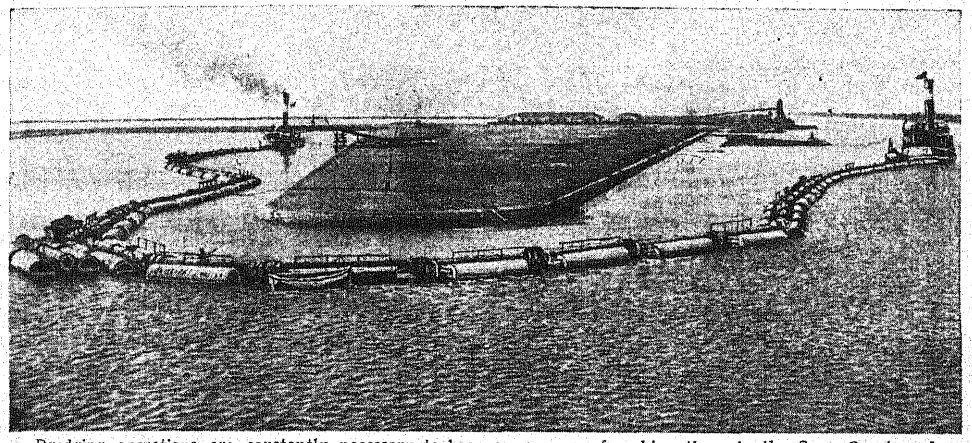


This is one of the Miraflores locks, which have the highest gates and the highest walls on the canal. In passing through the Miraflores locks a ship is raised over 50 feet above sea level. The time occupied in filling and emptying this lock is about fifteen minutes, and a ship is about two hours passing through all the locks of the Panama Canal.

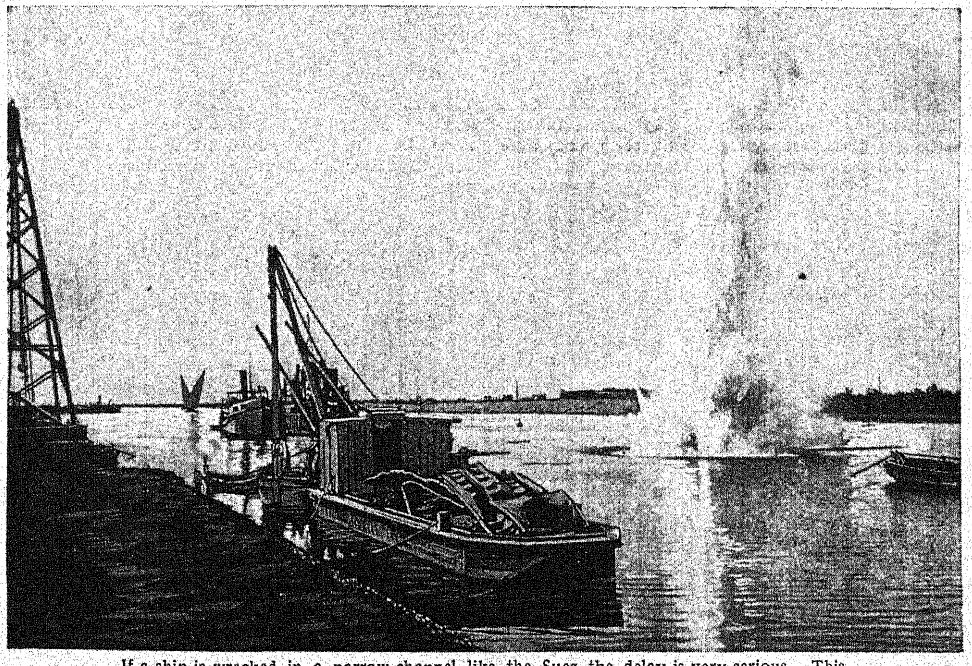
THE SUEZ CANAL FROM THREE POINTS



Here we see the Suez Canal as it enters Lake Timsah, near Ismailia. This famous canal is a hundred miles long, passes through several lakes on its way to the sea, and cost £20,000,000 to make.

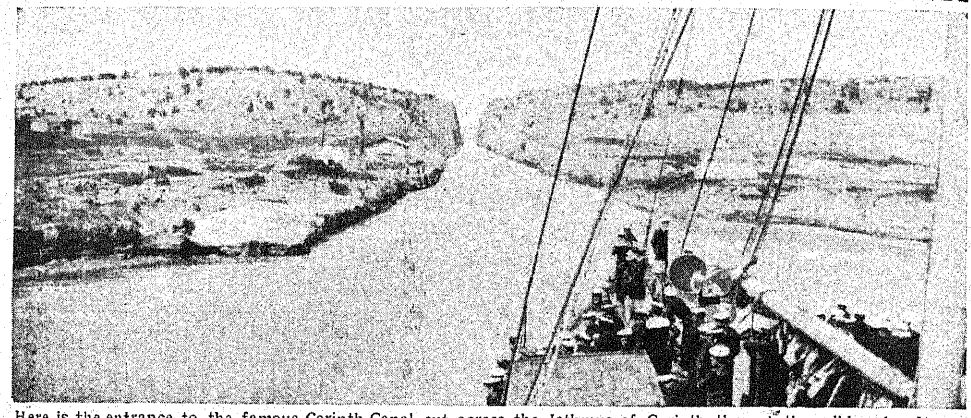


Dredging operations are constantly necessary to keep a way open for ships through the Suez Canal, and this photograph shows a suction dredger at work depositing inside a wall the sand it brings up from the water.

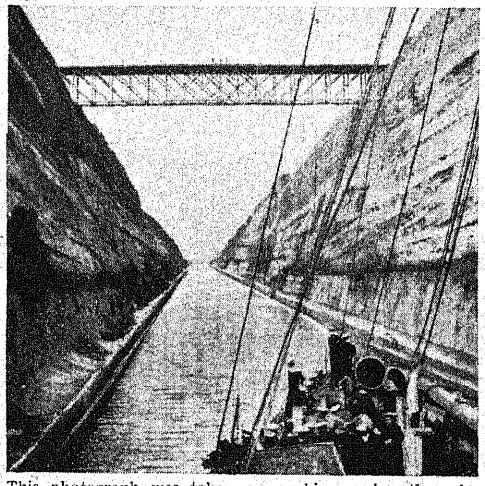


If a ship is wrecked in a narrow channel like the Suez the delay is very serious. This picture shows how the remains of a wrecked vessel are blown up to clear the channel.

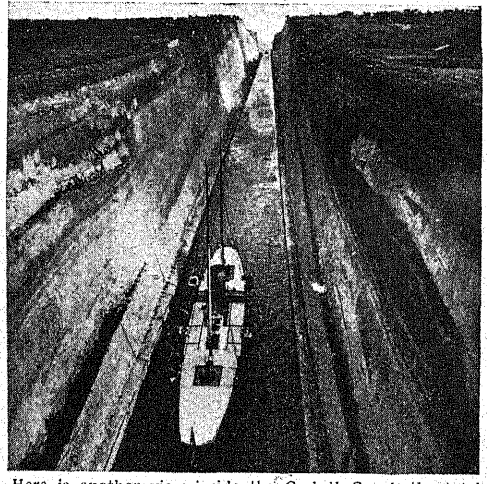
A CANAL CUT THROUGH THE SOLID ROCK



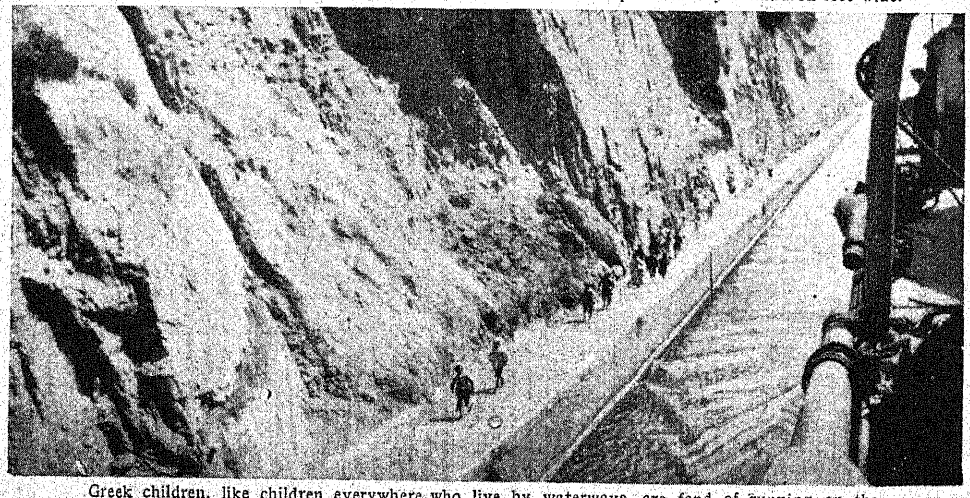
Here is the entrance to the famous Corinth Canal cut across the Isthmus of Corinth through the solid rock. It was begun in 1882 and opened in 1893, but the Roman Emperor Nero had begun the canal nearly nineteen centuries before.



This photograph was taken on a ship passing through the Corinth Canal, and we can see the steep rocky sides and the railway and footbridge overhead.

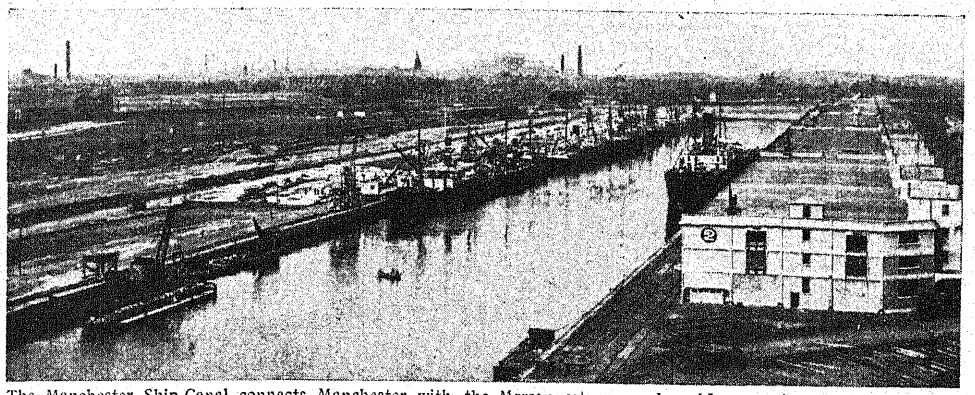


Here is another view inside the Corinth Canal, the total length of which is three-and-a-half miles. The water is 26 feet deep and nearly a hundred feet wide.

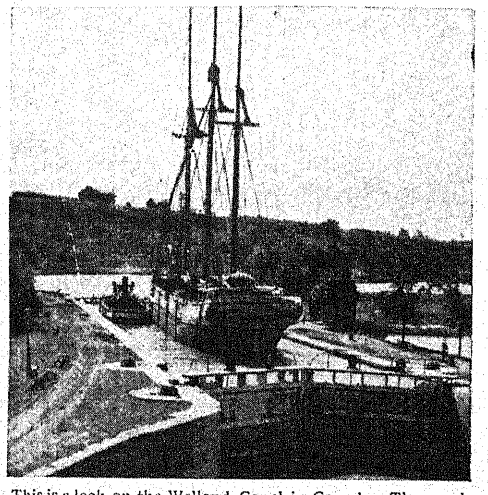


Greek children, like children everywhere who live by waterways, are fond of running on the path by the side of the Corinth Canal and keeping up with the ship as it passes slowly through.

SCENES ON FOUR GREAT CANALS

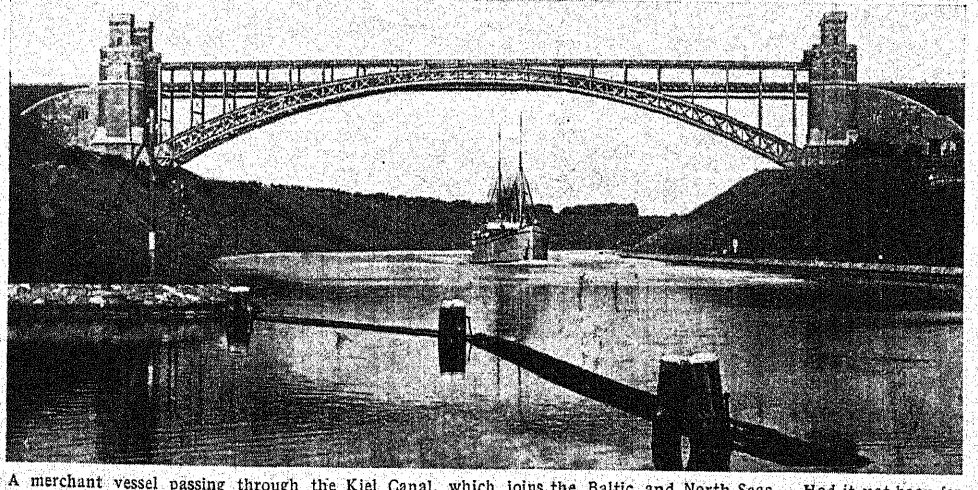


The Manchester Ship Canal connects Manchester with the Mersey estuary and enables sea-going vessels to proceed direct to the cotton metropolis. The canal was opened in 1894, and has greatly helped the trade of Manchester.



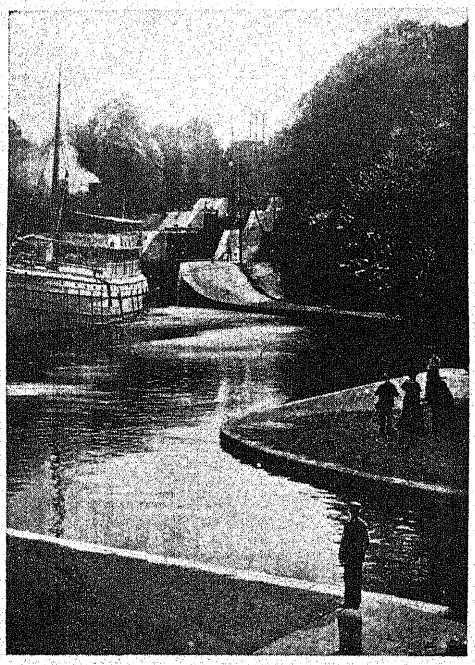
This is a lock on the Welland Canal in Canada. The canal is 27 miles long, joining Lake Erie and Lake Ontario.

Barges held up on the Warwick and Birmingham Canal owing to a shortage of water through a burst bank.

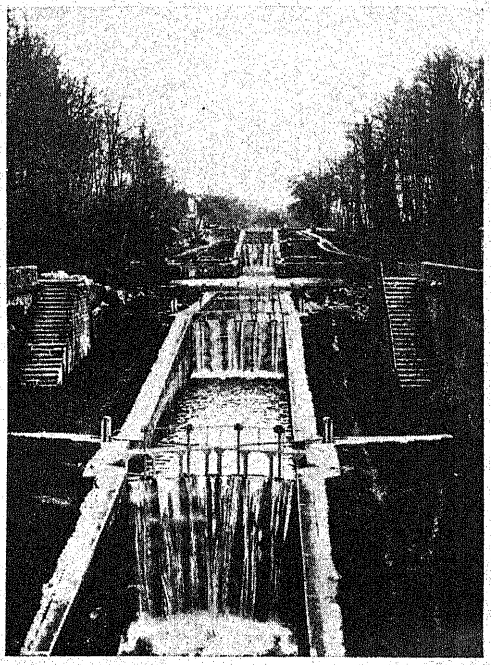


A merchant vessel passing through the Kiel Canal, which joins the Baltic and North Seas. Had it not been for this canal enabling the German fleet to pass quickly from one sea to the other, the British Fleet could have ended the Great War long before 1918. Ship canals have enormous influence on the life of the world.

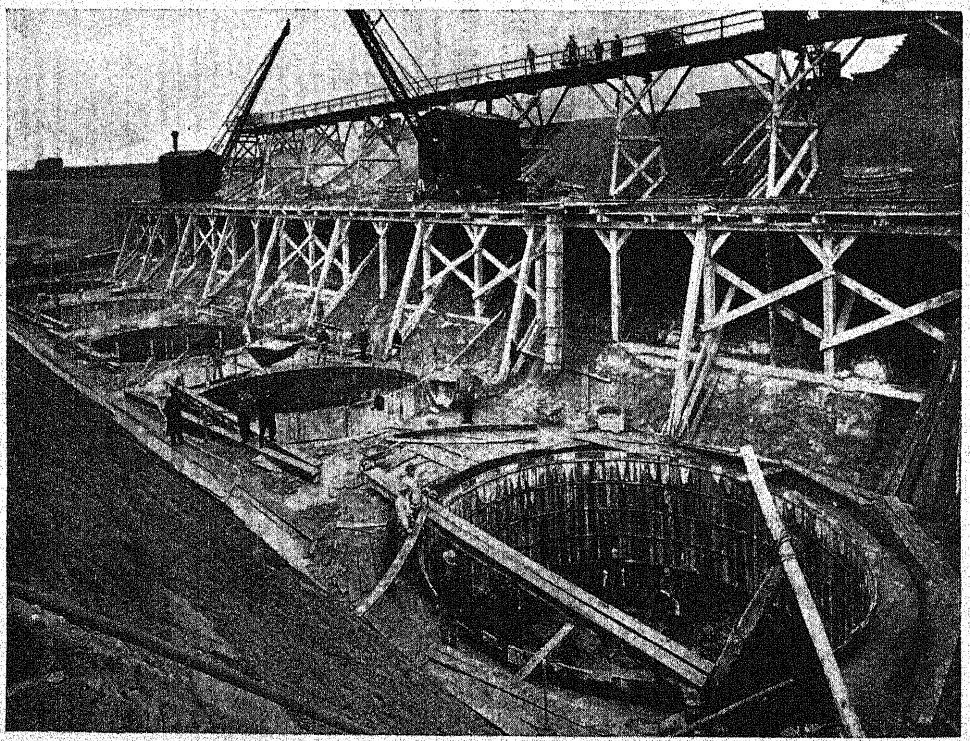
THE SHIP THAT GOES UP THE STEPS



The wonderful locks of the Gota Canal at Trollhatten in Sweden, a very remarkable series of steps uphill.

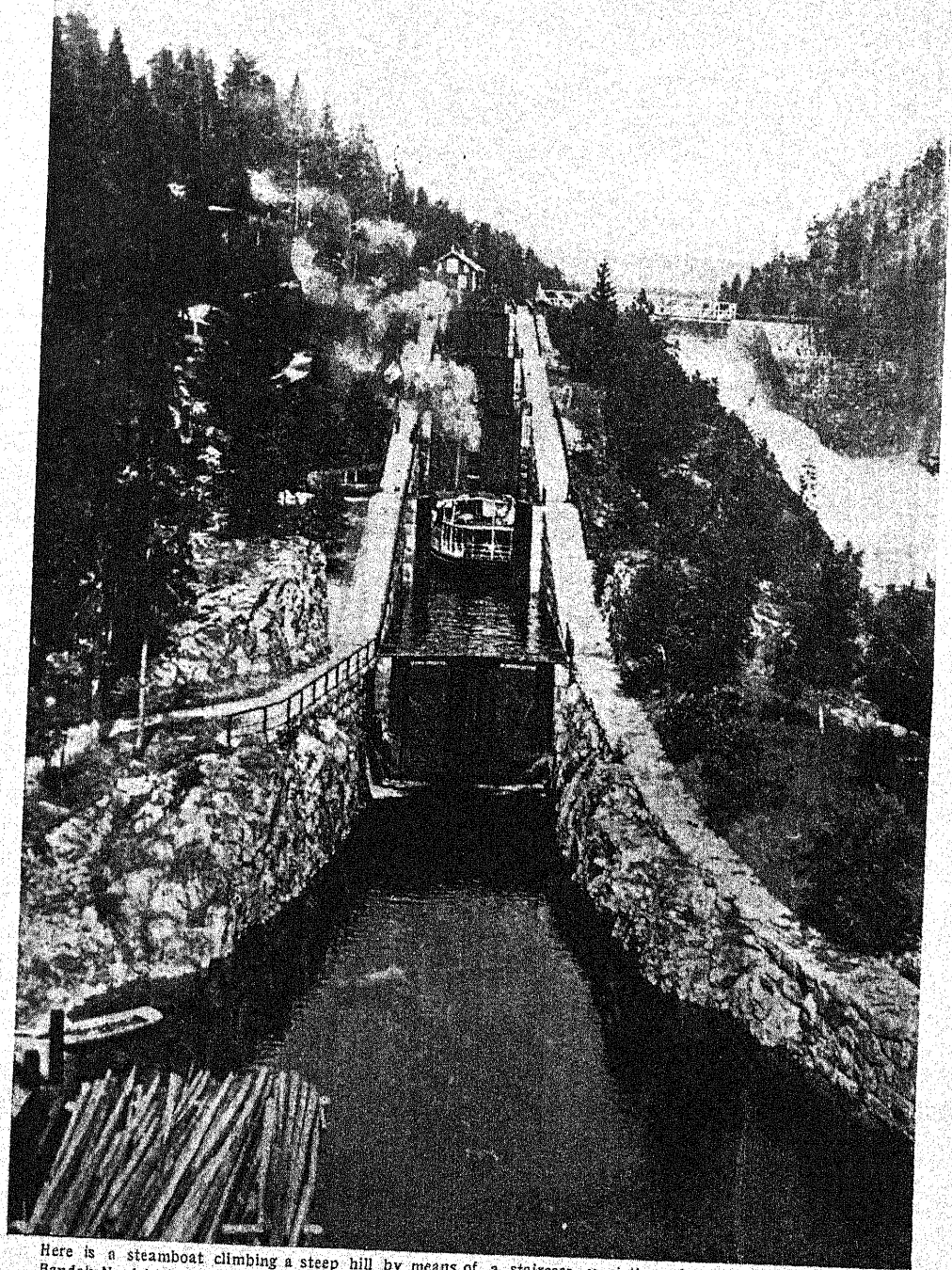


A flight of locks in Dordogne in France by means of which boats can gradually reach a high level.



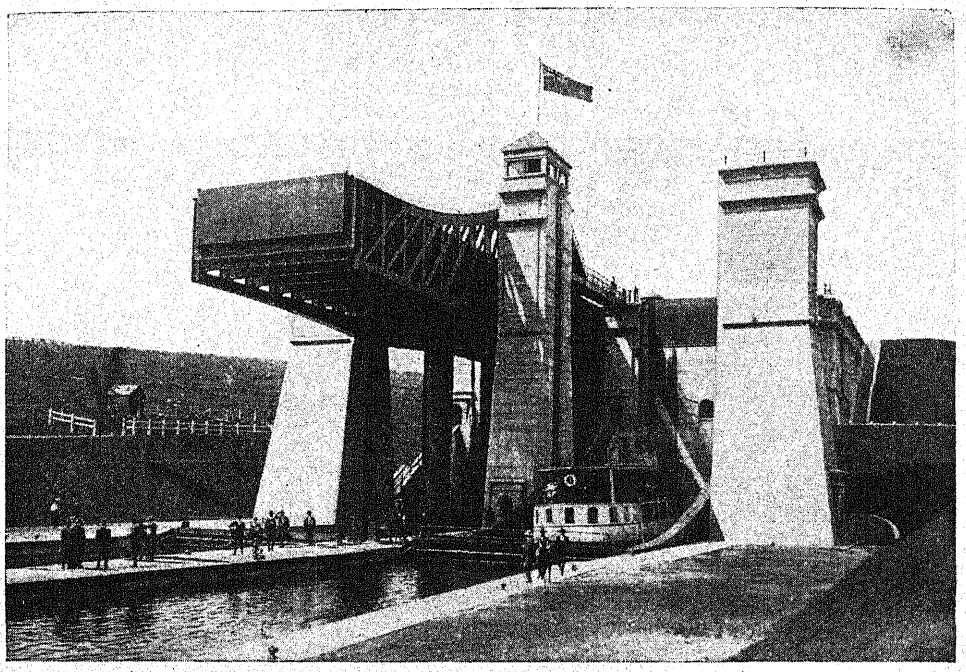
Here men are building the apparatus which will raise ships bodily by means of a lift from one level of a German canal to a higher level. Where the difference in level is considerable the use of a lift occupies much less time than a series of steps as in the upper pictures on this page.

HOW A SHIP GOES UPSTAIRS

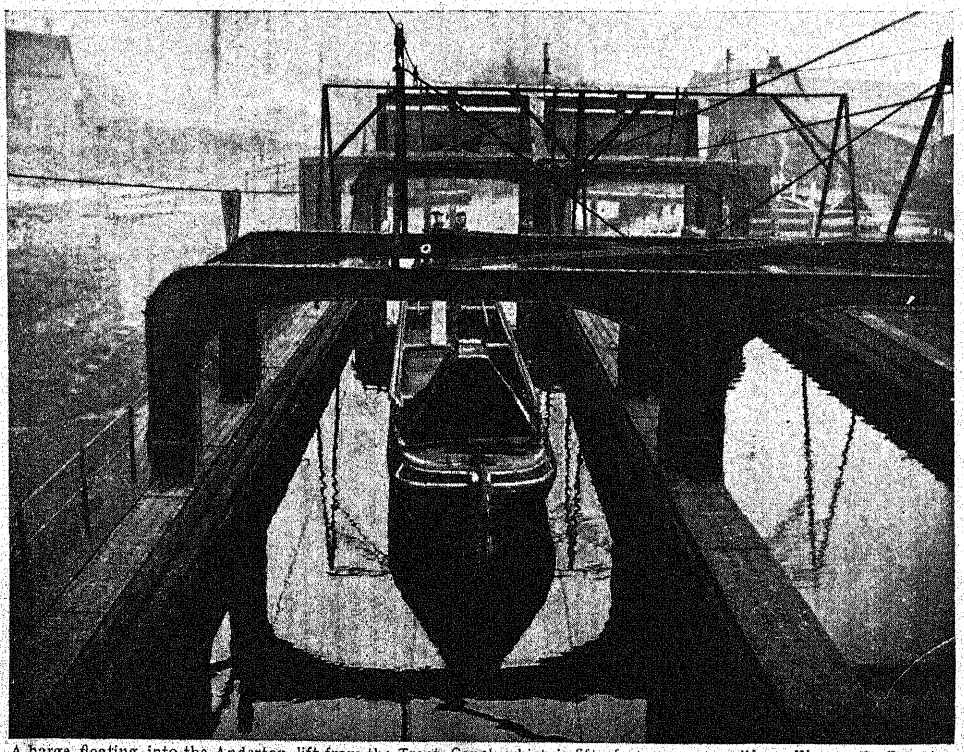


Here is a steamboat climbing a steep hill by means of a staircase consisting of a series of locks on the Bandak Nordsjo Canal in Norway. The man who invented the lock system was a great benefactor of mankind.

A SHIP GOES UP IN A LIFT

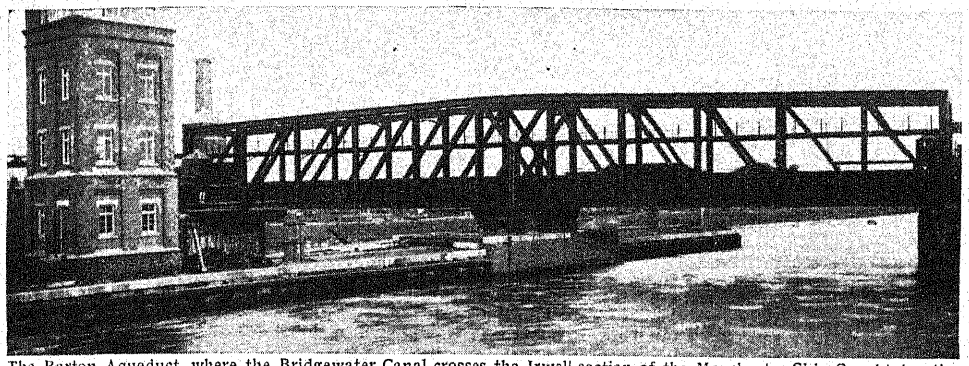


The hydraulic lift at Peterborough, in Ontario, the largest of its kind in the world. Each lift chamber holds 1300 tons of water and when the ship is safely inside, and the doors at each end are closed, the whole is raised by hydraulic pressure a distance of 65 feet. This lock cost £100,000. To raise a ship to the higher level takes only twelve minutes.

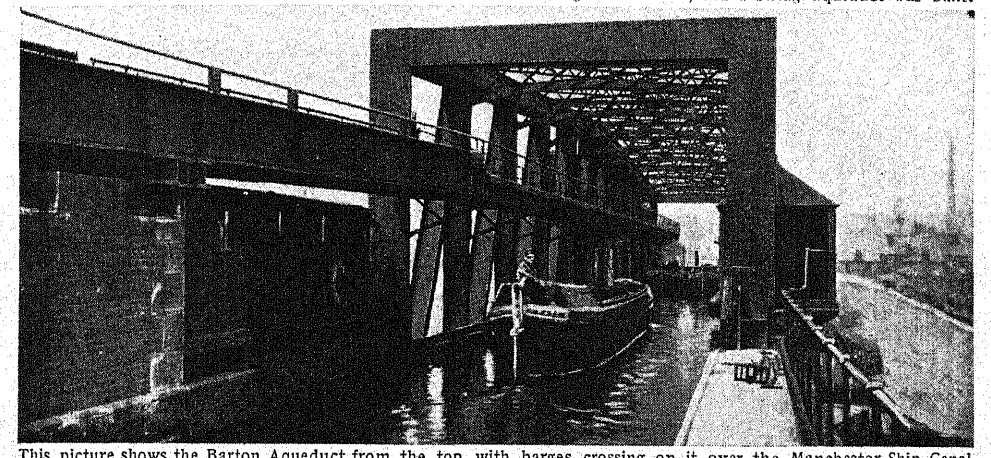


A barge floating into the Anderton lift from the Trent Canal, which is fifty feet above the River Weaver, in Cheshire. When the barge is inside and the doors of the lift closed the whole apparatus is lowered bodily to the river below.

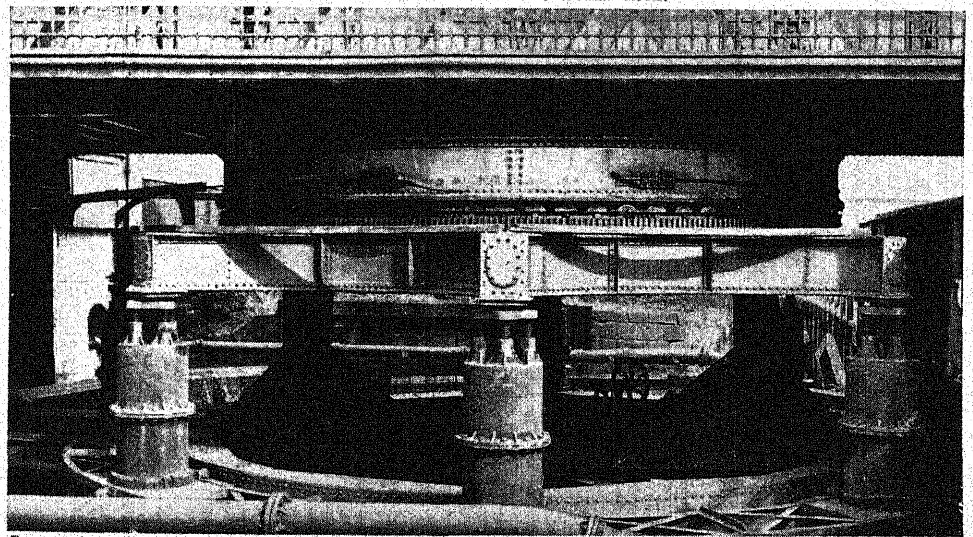
ONE CANAL PASSES OVER ANOTHER



The Barton Aqueduct, where the Bridgewater Canal crosses the Irwell section of the Manchester Ship Canal takes the place of the first navigable aqueduct ever built in England. When the ship canal was constructed it became necessary to find some way of allowing big vessels to pass under the Bridgewater Canal, and a swing aqueduct was built.



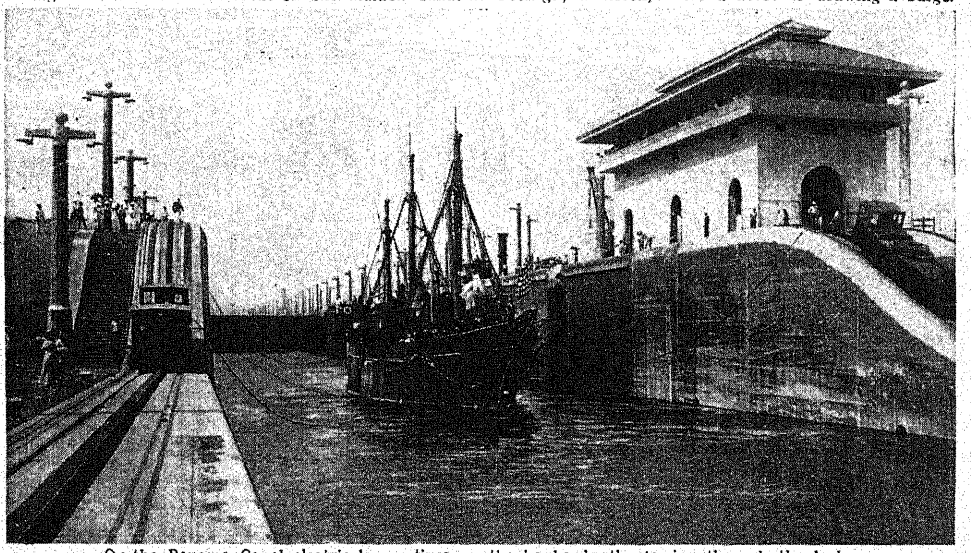
This picture shows the Barton Aqueduct from the top, with barges crossing on it over the Manchester Ship Canal below. When the aqueduct is swung round the water in it is retained by gates closed at each end, similar gates shutting off the water at each end of the canal itself.



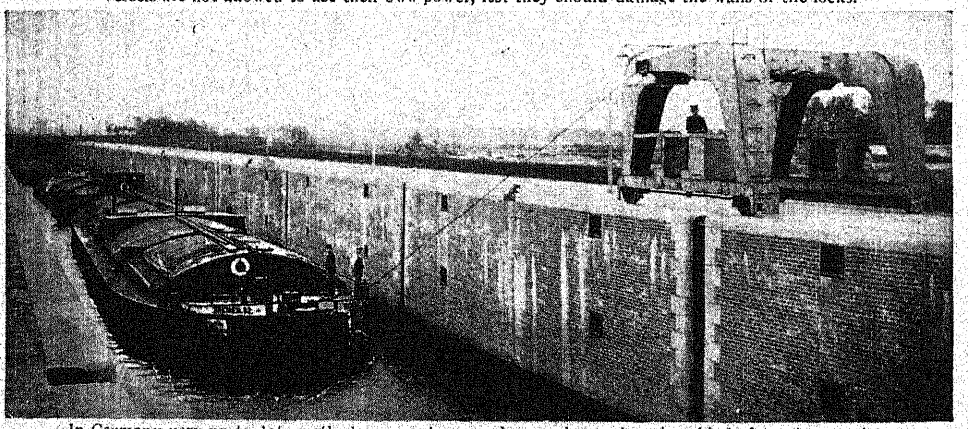
For moving the aqueducts and swing-bridges which cross canals very powerful machinery is required, and this picture shows the apparatus by which a swing-bridge over the River Weaver, connected with the Trent and Mersey Canal, is moved. It is one of the most up-to-date swing-bridges in England, and is worked by electricity.

HOW A SHIP IS TOWED ALONG A CANAL

On most canals vessels and barges are towed, and the pictures on this page show some of the ways in which the towing is done. Here is a scene on the Maldon Canal at Beeleigh, in Essex, where a horse is drawing a barge.

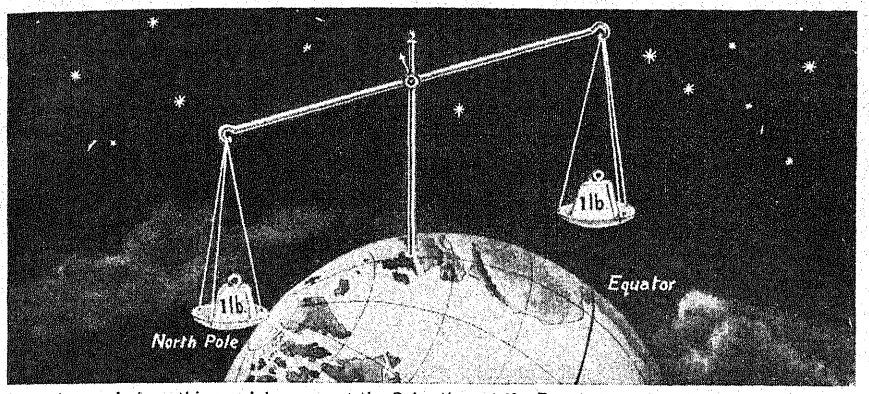


On the Panama Canal electric locomotives on the banks do the towing through the locks. Vessels are not allowed to use their own power, lest they should damage the walls of the locks.



In Germany very up-to-date methods are used, as can be seen here. A curious kind of tractor running on rails passes along the bank of the canal, and draws a string of barges on the water below.

Our pictures of canals are by Messrs. Frith, Valentine, and others



A pound of anything weighs more at the Poles than at the Equator, proving that the surface at the Poles is closer to the centre of the Earth than is the surface at the Equator.

IS THE EARTH QUITE ROUND?

WHILE we know that the Earth is a ball, we also know that it is not quite a sphere, being slightly flattened at the Poles. The shape is often described as like that of an orange, though this is an exaggeration, for the flattening is very slight indeed. If the Earth were represented in exact proportions by a globe eighteen inches in diameter, the difference between the greatest and least diameters would be only about one-sixteenth of an inch. On such a globe the highest mountains, the Himalayas, would project only about one seventy-fifth of an inch. The Earth is actually much smoother and rounder in proportion to its size than the balls in a bowling alley.

We know in several ways that the Earth is flattened slightly at the Poles. In the first place we know that the other heavenly bodies are of this shape, and it is reasonable to suppose that our Earth is no exception to the general rule. Then we know the Earth was once in a fluid state, and has always revolved on its axis, so that it must of necessity have been slightly flattened at the Poles, for in revolving any ball that is not absolutely rigid will bulge midway between its poles.

Another proof of the flattened shape of the Earth—or of its oblateness, as science calls it—is the fact that near the Poles the force of gravitation is found to increase, the reason for this being that the centre of the Earth from which the force acts is nearer the surface at the Poles than it is at the Equator.

Finally, the flatness is proved by actual measurement. If the Earth were a perfect sphere its circumference in any direction would measure the same. A circle is divided into 360 parts called degrees, and each degree on a perfect ball must be equal in length. When the degrees of latitude on the Earth's surface are measured, however, they are found to be longer as we get nearer the Poles, and this can only be the case on a sphere that is flattened toward the poles. We know when we have travelled through one degree of latitude measured along a meridian of the Earth, for such a distance causes a difference of one degree in the altitude of the Pole Star. These degrees of latitude are found, when actually measured, to vary considerably. At the Equator a degree is 68·69 miles; at Latitude 20 it is 68·77 miles; at Latitude 60, 69·21 miles; and at the Pole it is 69·39 miles. This is a conclusive and unanswerable proof that the Earth is flattened toward the Poles.

WHAT WERE THE SEVEN WONDERS?

The Seven Wonders of the ancient world were the Pyramids of Egypt; the Hanging Gardens of Babylon, a series of terraced gardens rising 300 feet above the ground, said to have been built by Nebuchadnezzar to please his wife Amytis, who wearied of the plains of Babylon; the Temple of Diana at Ephesus; the Statue of Jupiter by Phidias at Olympia; the Colossus of Rhodes, a gigantic statue of bronze over 100 feet high, and towering above the entrance to the harbour; the Mausoleum, or tomb of Mausolus, at Halicarnassus, erected by his widow Artemisia; and the Lighthouse of Alexandria.

The Pyramids. The Pyramids, the most famous of the ancient Seven Wonders, unlike the other Wonders can be seen today. The astonishing thing about them is that, except for the passages and the tombs to which the passages lead, they are absolutely solid. The Great Pyramid of Khufu, or Cheops, is 451 feet high (originally 481 feet), while its base covers more than 12 acres. It contains 88 million cubic feet of masonry, weighing nearly seven million tons. About 2,300,000 blocks of stone were used to build it, each weighing two and a half tons, and according to Herodotus 100,000 slaves were engaged for 20 years on this single structure. Apparently it was built solely for the honour and glory of Cheops, to provide him with a tomb. It is about 6600 years old and was originally covered with fine white limestone.

The Hanging Gardens. The ancient world considered the Hanging Gardens the greatest wonder of Babylon, the city of wonders. They consisted of about four acres of terraced gardens, standing on arches 75 feet high, and they were within the bounds of Nebuchadnezzar's palace. Groves of trees were planted, arbours and banqueting halls were built on them, and they were filled with a profusion of the choicest flowers To feed the gardens with water, Nebuchadnezzar had a reservoir built at the top, which was fed by a screw from the Euphrates. According to one story the Hanging Gardens were built to please a queen who came from a hilly country, and who did not like the flat district in which Babylon stood.

The Temple of Diana. The chief fame of the Temple of Diana of Ephesus now rests on Paul's references to it, but in ancient times it was famous throughout the civilised world. Very little is known about its beginning, but Croesus, the rich king of Lydia, is said to have presented the Ephesians with the columns needed to build it, as well as with cows made of gold for its adornment. The temple contained a famous statue of Diana, which was said to have fallen from heaven and to have twice saved the city from destruction. The Goths destroyed both the city and the temple in A.D. 262, but modern excavations have shown that the temple once occupied 80,000 square feet of ground. Fragments of it are in the British Museum.

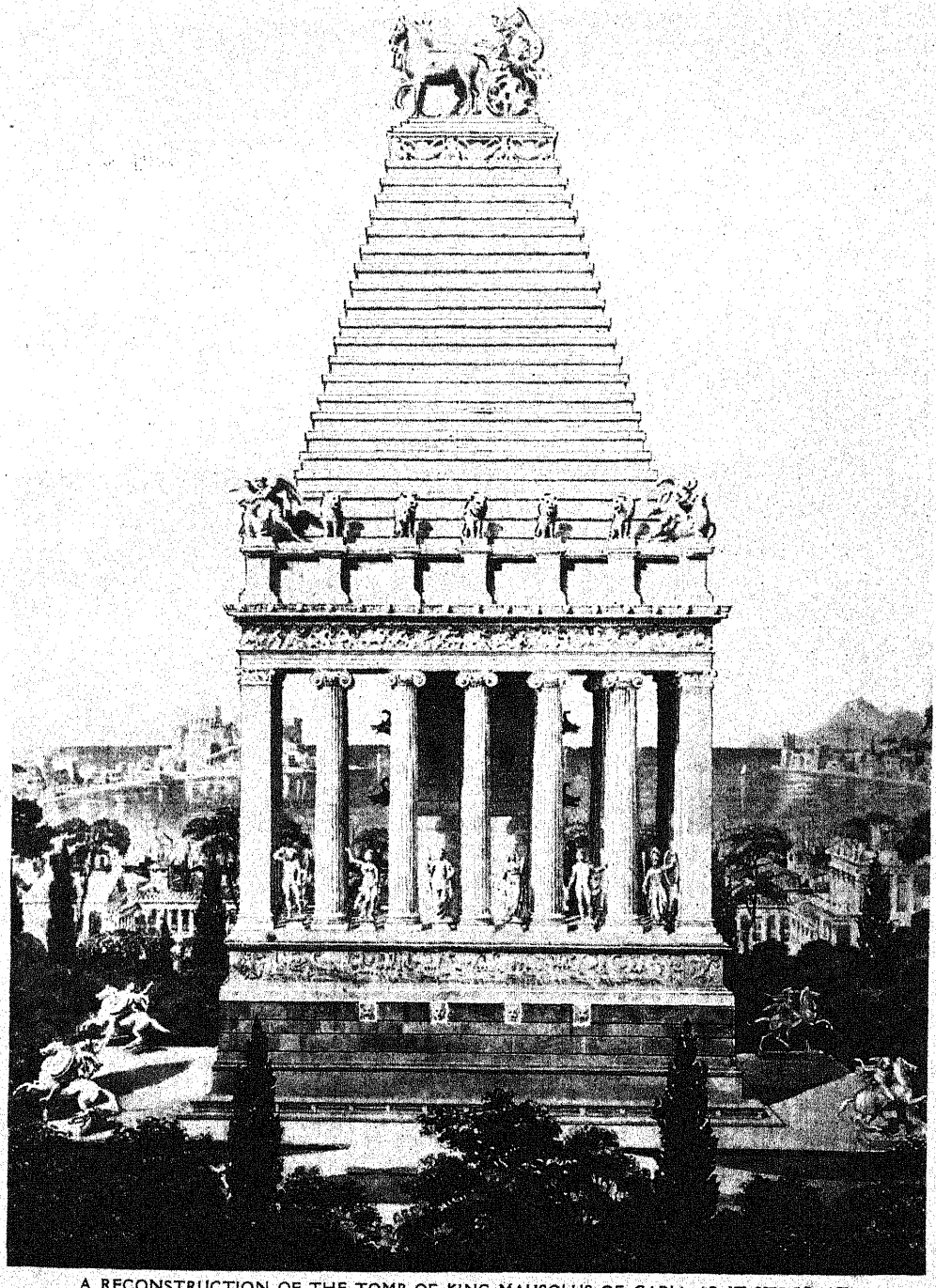
The Statue of Jupiter. The great statue of Jupiter, which Phidias made for the temple at Olympia, is believed to have been the sculptor's masterpiece, but its fate is unknown. The only trace of it today comes from a few small coins on which the statue is shown, Jupiter being seated on a richly-sculptured throne. According to tradition his body was wrought in ivory and his robe was of gold.

The Colossus of Rhodes. Considering its size and fame, the Colossus of Rhodes had a short and inglorious history. It was a gigantic bronze figure of Helios, the sun-god, the work of a sculptor named Chares of Lindus, and was designed to form a huge landmark at the mouth of the harbour. After taking 12 years to complete, it was set up in 260 B.C., but only 60 years later it was overthrown by an earthquake. For many centuries it lay in ruins, being finally sold by the Saracens as scrap metal.

The Tomb of Mausolus. The splendid tomb of King Mausolus of Caria at Halicarnassus was the origin of the word mausoleum. It was built in the fourth century B.C., by Artemisia, wife of Mausolus, and was the most magnificent tomb then known. It was 111 feet in circumference and 140 feet high. Some of the sculptures are now in the British Museum. On its summit stood gigantic statues of Mausolus and his queen.

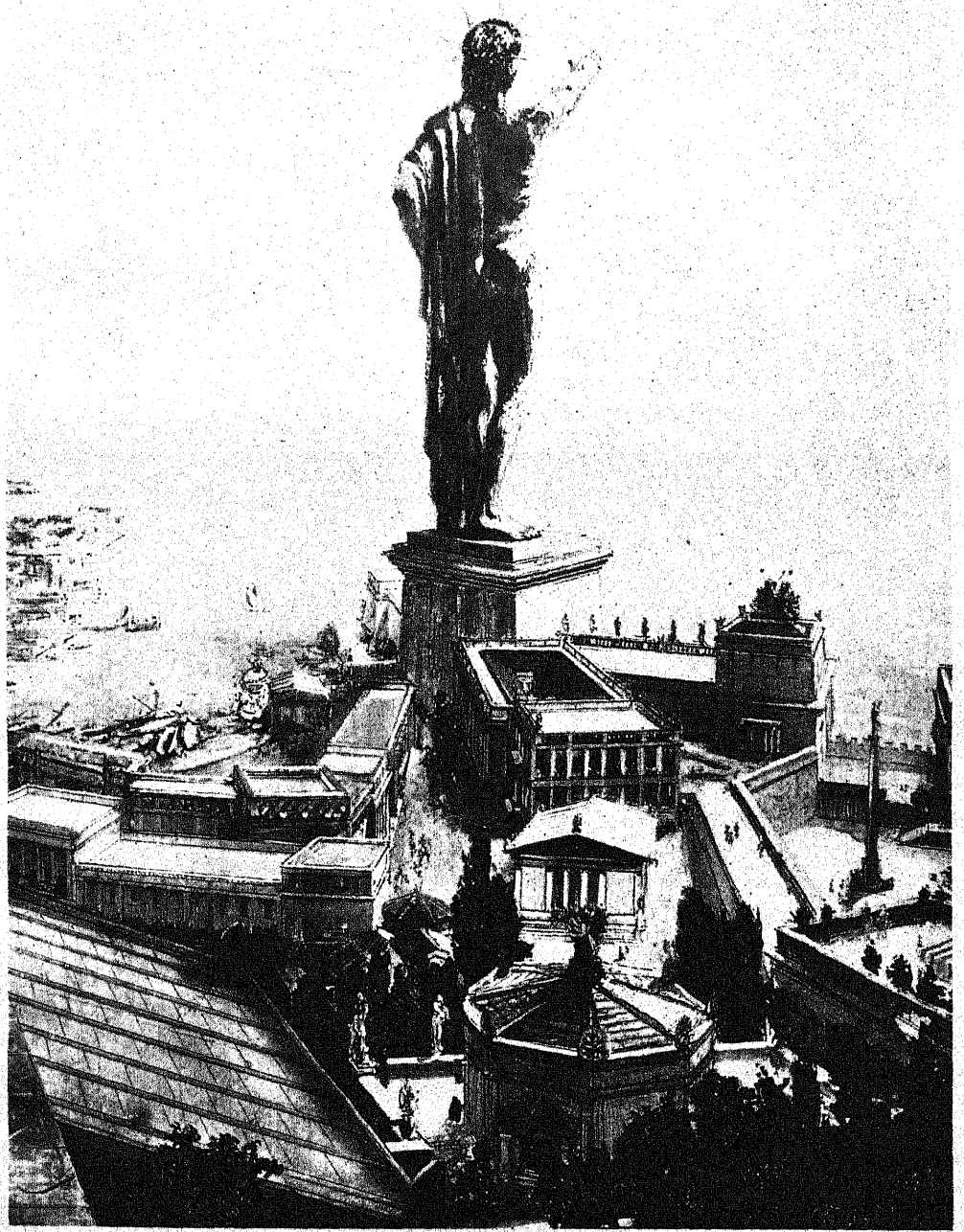
The Lighthouse of Alexandria. The Pharos at Alexandria was built by Ptolemy the First in the third century B.C. and stood on the island of Pharos at the entrance to the harbour. It was so famous that pharos came to be the Greek word for a lighthouse. The building, said to be 400 feet high, was of white stone and contained many storeys. The higher storeys had windows looking seaward, in which torches and fires were kept burning by night.

SEVEN WONDERS OF THE OLD WORLD
AS IMAGINED BY ARTISTS OF THE NEW WORLD

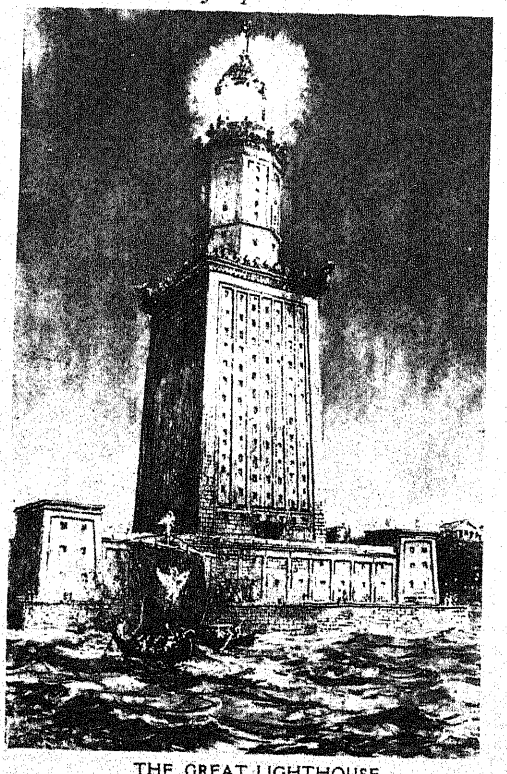


A RECONSTRUCTION OF THE TOMB OF KING MAUSOLUS OF CARIA AS IT STOOD AT HALICARNASSUS, IN ASIA MINOR, MORE THAN TWENTY-TWO CENTURIES AGO

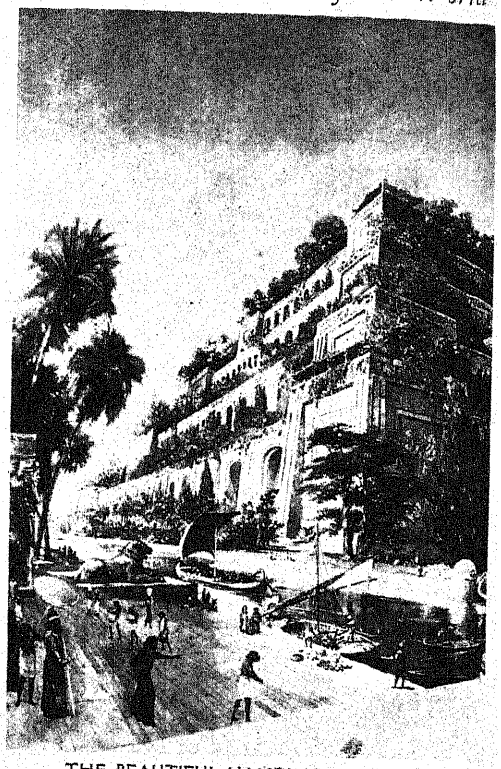
THE PYRAMID OF CHEOPS, AS IT STANDS TODAY, A SILENT WITNESS TO SIXTY-SIX CENTURIES OF THE WORLD'S HISTORY. From a photograph by Donald McLeish



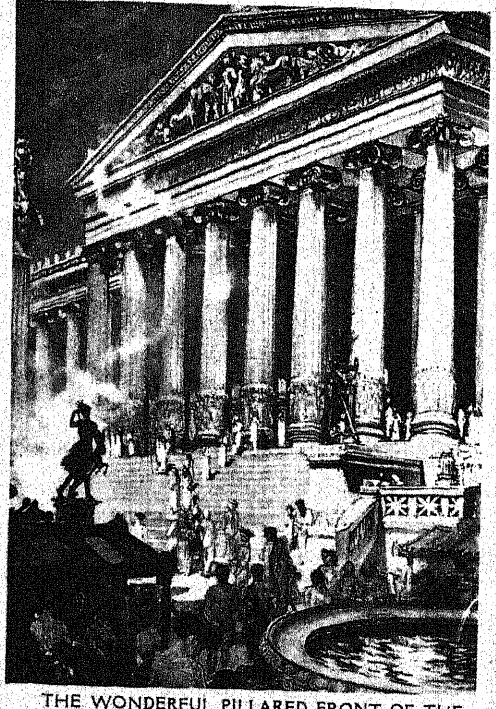
THE COLOSSUS OF RHODES, THE GREAT BRONZE STATUE WHICH STOOD AT THE ENTRANCE TO RHODES HARBOUR LOOKING OUT ON THE AEGEAN SEA



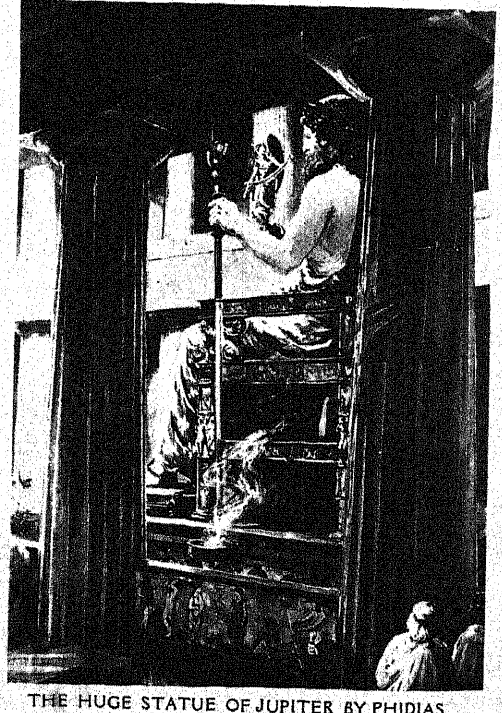
THE GREAT LIGHTHOUSE
OF ALEXANDRIA



THE BEAUTIFUL HANGING GARDENS
OF BABYLON



THE WONDERFUL PILLARED FRONT OF THE
TEMPLE OF DIANA AT EPHESUS



THE HUGE STATUE OF JUPITER BY PHIDIAS
IN THE TEMPLE AT OLYMPIA

Why is The Negro Black?

Nobody knows the complete answer to a question like this, because the origin of the races of mankind is lost in ancient history. But we know that we find black people living in the hottest parts of the Earth, in many places where white men find it impossible to live, so that evidently the black races have developed some power of resisting the climate in these spots and also the diseases peculiar to that part of the world.

As a result of this it would come about that only those who were black could live and survive there, and in course of time there would be nobody except the black people in such places, a black race thus being produced by Nature selecting the blackest people as those best fitted to survive there. The blackness is probably the result of the continued exposure to the great heat of the Sun in the tropical countries. Some people have thought that black was the original colour of the human race, and that the white races have arisen from them. Whatever is the reason, the colour of the skin evidently results from certain powers of human beings to adapt themselves to the conditions of climate in which they live.

Why Does Boiling Milk Flow Over the Top of the Saucepan?

What happens when any liquid boils is that parts of it are changed into a hot gas. This is much lighter than the liquid in which it is formed, and so it rises to the top as a bubble, and the bubble bursts, giving off the gas into the air. When a bubble formed at the bottom rises through the liquid unbroken until it reaches the top, and bursts there, we say that the liquid is boiling.

In the case of water, which is all made of one thing, there is nothing to prevent the bubble from reaching the top of the boiling water and bursting there. So, though the surface is raised everywhere for a moment by bubbles which have half freed themselves, the water does not usually boil over. But milk is a mixture of many different things, some of which can boil, and some cannot. What really boils in milk is the water, which makes up the greater part of it.

At least one of the things in the milk turns solid and forms a skin on the top of the milk when it is heated. This skin is made of one of the valuable proteins of the milk, and it is great waste not to eat it. Now, when the bubbles of water-gas reach the surface, they find themselves imprisoned by this solid skin that is forming, and they lift it up, as hot air may lift a toy balloon, so that we say the milk boils over. If we stir it carefully, we may prevent this.

Who was Auguste Comte?

The remarkable Frenchman called Auguste Comte was born in 1798, and died in 1857, and he devised the system of thought called Positivism. Comte believed that the only kind of real knowledge we have is our knowledge of things around us. He believed that men's thoughts showed three stages. In the first they believed in gods or in God; in the second, they believed in all sorts of abstract words; and then there was the third stage, which he called the positive stage, where men confined themselves to things about which they could have positive knowledge.

His religion included a great deal of regulation of human society, and very careful education of the young. It is often called the "religion of humanity," because Comte believed that men should worship Humanity, the Great Being of which they are part. He invented a new calendar commemorating the names of great men of the past.

Positivism contains many beautiful and noble elements, but not in one case out of millions does it satisfy human nature; and so, though Positivists still exist in various parts of the world, they are extremely few in number, and the expectations of Comte have been quite falsified. Comte was, however, a genuine student of society, and he discovered various important truths about mankind, and said so many wise and deep things that his name cannot be forgotten.

Can Plants be Grown by Electricity?

It has been thought for some time that the passage of electricity from the air to the earth, which is probably always going on to some extent, must have an effect on the life of plants. Fields of various plants, including wheat, have been covered with electric wires, so arranged that electricity passes from them into the earth; and it has been proved that the increase in the amount of electricity that passes into the soil, or perhaps into the leaves of plants, is enormously valuable. The plants grow more quickly and strongly.

Why Do Women Wear Wedding Rings?

Most of the people who study the customs of long ago are agreed that the wedding ring had its origin in the days when men used to own their wives. In those terrible times, which stupid people call the good old days, men used their brutal strength to make women their slaves, and it is customary to put a chain on a slave, something to show that he is yours. After a time, as men get a little better, instead of actually putting anything like a chain on their wives, or a ring round the neck or body they invented something which would have the same meaning without being really bad. Anything that stands for something else, like this, is called a symbol; and we now believe that the wedding ring began as a symbol, meaning that the wife was the husband's property.

Where Does a Cold Come From and Where Does It Go?

A cold is due to microbes that attack our nose and throat, and in bad colds even our upper air-passages. The microbes probably come from someone else who has a cold. We do not know whether the cold-microbe lives anywhere except in the throats and noses of human beings. If it does, perhaps a cold may come from wherever it is the microbe lives; but usually the answer to the first half of the question is that the cold comes from someone else. Unfortunately, he is none the better for having given it to you. The answer to the second half of the question is that, so far as we are concerned, the cold ends because, after a few days, our bodies learn how to deal with the microbes, so that they are either killed, or else can do us no more harm, and so we recover. But the cold may often go to other people, just as it came to us, and thus the trouble spreads.

Why Do We Get Out Of Breath When We Run?

We know that if we treat the heart properly it never gets tired; but if we run very hard we suddenly throw a great deal of extra work on the heart. Now, so long as we are well, one of the most wonderful things about the heart is the amount of reserve power it is able to call up. When we get out of breath we have already called up this reserve power, and should take warning. Boys at school sometimes make their hearts unwell for many months by running too hard in races. When we run we use up a lot of air as an engine-driver uses much air in his furnace if he makes his train go quickly. Therefore, we need the blood to rush very quickly through our lungs, where it helps itself to the oxygen in the air which we breathe. So the heart beats more quickly and at last it sends a message to the brain and makes us out of breath, as a warning. If we are wise we take the warning and slow down or stop altogether.

Is The Earth Hollow Inside?

Though no one has ever seen the inside of the Earth we are certain that the answer to this question is No. We know that the Earth has a solid crust, very thin, and apt to crack and buckle, producing such things as mountain chains in consequence, and we can prove that this crust must be utterly different from what lies underneath it.

One of the many ways in which we can learn about the inside of the Earth is by weighing the Earth, and noting its weight in comparison with its size. This teaches us that the denseness of the stuff that makes the Earth is very high indeed, and the material in it is packed together with more tightness than we can imagine. We have just scratched the surface of the Earth, and already, in going down even a tiny distance we find the density increasing.

Where Do Bats Go In The Daytime?

Bats are what we call nocturnal creatures; they sleep during the day and are active at night. So are many other animals. Nearly all the wild deer are, and the lions and tigers and leopards. These larger creatures can see by day, but the bats cannot. They are as blind in the sunlight as a dormouse. Therefore, as they would be helpless if a cat or a big bird were to see them by day, they hide away in dark places. In all the church towers, in corners and underground passages, in little openings under the roofs of houses—there the bats hang by day. There is an enormous cave in Kentucky in which millions of bats are to be found, sheltering while the Sun is shining. They cling to the rock and to each other in such thick clusters that forty bats were once counted in a space of a few inches. The Pyramids swarm with bats. Inside all is dark as the darkest night, even on the brightest day, and travellers are astonished to find bats dashing about their heads.

Why are the Spokes of a Mangle Wheel Curved?

We frequently see in machinery wheels with curved spokes, and the mangle is one of the most familiar things with wheels made this way. One might think at first that the spokes are curved merely to improve the appearance of the machine; but, as a matter of fact, they play quite an important part when the wheel is being cast. Metal always contracts on cooling, so that both wheel and spokes are liable to crack after casting; but it has been found that by making the spokes curved the wheel is much less likely to come to harm. This is because spokes shaped this way give much more play when it contracts on cooling.

How can a Plant grow on a Bare Wall?

One of the most important parts of the food of green plants is found, as we know, in the air. That is the carbon dioxide which provides the plant with its carbon. But that, of course, is not all. The plant must have water, and it must have salts. Now, a bare wall is not as bare as we think it when we come to examine it closely. In the first place, rain falls on it, and so the plant gets its water. Nor is this all. Rain itself contains small quantities of salts which are valuable to the plant; and as it trickles down the wall it gains more. It has the power of melting out of the wall salts that may be contained, for instance, in the mortar. We know that lime is very valuable for plants, and mortar is really a kind of lime. So we find that plants can obtain, even on a bare wall, those things that are necessary for their life. But the supplies of certain essentials are, of course, very scanty, and the forms of plant life which can grow in this fashion never reach a large size.

How is a Stone Made?

Stones are really pieces of broken rock. By the side of the road you can see stones being made with a hammer. These are sharp, as they have been rudely broken.

But rocks are broken up in many other ways. Even the life in the soil on a cliff, for instance, may gradually break up the surface of the rock. If the pieces rub against each other, and are open to the wind and the rain, they get rounded and dull; but if we take many of these stones and break them we find the unchanged rock inside them, often beautifully smooth and bright. There are other kinds of stones which are quite soft. Those we have been speaking of are made of real rock which ages ago was made under the action of great heat. But we may pick up sometimes a soft stone which we can easily rub away—a piece of soft sandstone, which is really much the same as the sand on the seashore.

Why Does a Noise Break a Window?

A noise is an irregular wave in the air. A wave of air may break a window exactly as a wave in the sea will break a wall. If you think a minute, you will see that every time a noise gets through a shut window it shakes the window. If the noise is coming in from the street the air outside is thrown into waves which pass through it until they strike the window, and shake it; then the window shakes the air inside the room in the same way as the air outside shook it, only perhaps not so strongly. And so the noise reaches you, just as if you had heard it outside, but not so loud. Well, plainly, the noise has only to be loud enough—that is to say, the waves in the air have only to be big enough—to shake the window more than it can stand, and then it breaks.

Why Does a Bird not Fall to the Ground?

We know, of course, that there is such a thing as the air, a great ocean as real as the ocean of water; and the flying of a bird is really like the swimming of a fish. But if a bird stops flying it will drop, for its body is heavier than the air. Though the bird's body is heavier than the air, it is most beautifully made so as to be as light as possible; and there are great spaces in its body which are filled with air.

Though this helps the bird, of course, its body is still heavier than the air, and it will fall unless it uses its wings. The bird knows this, and sometimes it wants to fall quickly. It folds its wings and simply drops. The strongest muscles in the bird's body are those which press the wing downwards, and if it uses them quickly enough this keeps its body up or even raises it. When we swim we do what is really the same thing, though it is not nearly such hard work to swim as it is to fly. No machine that man has ever made is as clever as a bird for flying, because there is no machine in the world that can do so much work as a muscle in proportion to its weight.

What is Peat and How Was it Made?

Peat, we may say, is half-way between trees and coal. It is made, of course, from vegetable matter, and we may find it in layers many feet thick. About one-seventh of the whole surface of Ireland is occupied by bogs in which the formation of peat has occurred, or is occurring. It is said that an inch or two of peat forms every year. Peat varies a good deal, according to the extent to which part of it has been oxidised away and the carbon left. On the average, about three-fifths of it consists of carbon. When dried, of course, it can be burned.

Why do I Jump When I Get a Shock?

The jump when we get a shock, or the closing of our eyelids when something comes near to them, is called a *reflex action*. Reflex actions are constantly occurring in our bodies, and in those of all living creatures, and we could not live without them. They are called reflex because the action follows at once on the thing that excites it, almost as if it were a ball or something reflected from a wall. The mark of a reflex action is that the *will* is not concerned in it; and that is the whole point of this question. We do not want to jump, we do not make up our mind to jump; but we jump first, and then notice that we have jumped. The will does not cause reflex actions, but it can often control them if it has time and warning given to it. That is why we jump at an unexpected sound, as when someone bangs a door; but not at an expected sound.

Why do Things Seem Blurred When We Look From a Great Height?

We can only suggest an interesting theory about this. As a rule, anything we look down to see is quite close to our eyes; a few inches when we are reading, for instance, or a few feet when we look at the ground; and it is the rule that when we look at anything near, our two eyes turn inwards towards each other slightly, or converge, as we say. The eyes are so accustomed to converging when they look downwards—as the things they look down on are usually near, and as the two eyes cannot see a near thing well unless they converge slightly in looking at it—that they do the same when we are on a height, and perhaps the nearest thing is the ground, hundreds of feet below us.

In order to see a thing so far away, our eyes should look straight out, parallel with each other; but until we have learned how to look out from high places the eyes converge, and so are bound to give us a blurred view of the ground. Then we feel that we cannot see properly and become frightened and giddy. This is what some students of the eyes believe.

What are the Wire Hooks on the Crossbars of Telegraph Poles?

It sometimes happens that a telegraph wire becomes detached from the little earthenware insulator which carries it, and the wire hooks we see at the ends of the crossbars are for preventing the wire falling on to the road when this occurs. Not every telegraph pole has these little hooks, but they are usually seen on the poles placed in exposed positions, especially on those where the line takes a sharp turn. In this way not only are the telegraph authorities spared much trouble and expense in the event of a breakdown, but passers-by are saved from accident.

What is a Garden City?

Wise people, instead of trying to abolish cities, are now beginning to build cities of a new kind, which are called Garden Cities. Some day, no doubt, all cities will be of this kind. Every house in a garden city stands free of its neighbours, and has its own garden. The roads are wide and well provided with trees. The rich green leaves help to purify the air, and the people are not so overcrowded as to make the air foul. Dense smoke is not allowed to come out of chimneys. There are many ways of consuming smoke and making it useful instead of dangerous. No one is allowed to buy a piece of land and cover it with slums. There is a splendid garden city, the first in England, near Letchworth; and certain wise employers have built smaller places of the kind. Fewer babies die in one of these garden cities than in any other place of its size in the whole of England.

What do We Mean by Carrying Coals to Newcastle?

"To carry coals to Newcastle" means to do something unnecessary. It is interesting to remember that this extreme example of something not necessary has actually been done, for in the difficult days soon after the Great War coal was really taken to Newcastle from China.

Is There the Sign of a Lost Eye in Our Brain?

It is quite true that there is a part of the brain which is supposed by very learned men, who have studied the brains of all kinds of animals, to represent an eye which occupied the position of the middle line of the head right in the centre. This structure is still present in animals today, and even in man himself, although it no longer has any function belonging to sight. But, curiously enough, there is still existing in the far-off country of New Zealand a lizard whose proper name is sphenodon, in which the central eye is so near the surface that it can still be affected by the rays of light.

This curious creature—a cousin of the great extinct dinosaur of the prehistoric world—seems to be the only remaining animal in the world in which this eye exists. It is thought, therefore, that some animals had originally one eye in the middle, and that as they evolved into more complex creatures the one eye has become separated into two, a right and a left eye.

Can a Noise be Heard Where There is No Air?

What we call noise is all those kinds of sound which have no musical quality. They are not musical, because they consist of waves in the air which are not regular, but come " anyhow " against the ear.

We usually speak of sound as a wave in the air, because that is what it generally is. Certainly it cannot be heard where there is no air, if by " no air " we mean a vacuum—a space from which the air has been removed as far as possible. But the waves that make sound can be carried through other gases besides those which make up air, or through liquids or solids. Sound travels quite readily, for instance, through water. We know only too well that it travels through solids for shut windows do not exclude the sound of the streets from our ears, though they make the sound less. This means that the wave movement of the air outside the window is communicated to the glass, and then by the glass to the air in the room.

The glass cuts off some of the sound, because a certain amount of power is lost in transferring the wave from one medium, as we say, to the other.

Though noise and sound in general can be conveyed through any kind of matter, whether solid, liquid, or gaseous, what we call the ether cannot convey sound. Thus there can be no sound in the depths of space, and not the greatest noise made in the Sun could ever reach the Earth. On the other hand, *nothing but* the ether can convey light.

How Did all the Metals Get into The Earth?

If this question had been asked a few years ago, no one could have made any better answer than that the various metals were in the stuff from which our Earth was formed ages ago, and that by some chance or other they just settled down in the Earth's crust—one here and one there. But we have now to give up for ever ideas of this kind.

We are beginning to understand that change is going on everywhere. This is true of worlds; it is true of plants and animals; it is true of nations and their ways, and it is true even of the atoms of the elements. So now, when we find gold in some part of the Earth's crust, or silver, or lead, or whatever it be, we inquire into their history.

For instance, we have little doubt that all lead is the result of a long series of changes that began in an element called uranium, and that stages in between uranium and lead are represented by the element called radium, and the beautiful and precious metal we call silver. Probably before very long chemists will be able to work out the history of many metals, and even to discover what will happen to them

Why are Some Flowers Sweeter At Night?

Most flowers are fertilised by insects, and Nature has used great ingenuity to attract certain insects to certain flowers.

Some of them she shapes or colours attractively; some she renders attractive by honey, and some by scent. In one way and another, all sorts of insects—beetles, earwigs, and butterflies are tempted, and, clinging to flowers, they carry fertilising pollen from one to another. The flowers that become specially fragrant at night give off their fragrance usually to attract moths, which only fly at night. It is strange that these flowers should give off fragrance just at the right time to tempt the moths, but it is evidently a case of selection by survival of the fittest, for the flowers which failed to grow fragrant at night would not attract moths to fertilise them, and so would have no seeds and would die out.

Why is Straw Sometimes Hung Under Bridges?

The practice of hanging a bundle of straw under bridges over navigable rivers and canals is a curious custom the beginning of which no one exactly knows. The bundle of straw is a sign meaning that the bridge is under repair, and that sailors must be careful in passing under it in case anything should drop on them from above. Probably this sign was first used by workmen who, having no signboard handy, used a bundle of straw as the most likely thing to attract attention; but at all events the custom is now recognised by bargemen all over the country.

Why Does Celluloid Catch Fire so Easily?

Paper catches fire easily because it is made from vegetable substances which contain large quantities of carbon and hydrogen, and not very much oxygen. So, when it is made hot by a match the carbon and hydrogen of the paper combine with the oxygen of the air, and the paper burns.

Celluloid is made from paper by the use of strong acids which turn the paper into a new compound that has very convenient properties. When hot it softens, and can then be moulded into various forms, which it retains when cooled. Celluloid has very much the same composition as paper, though it differs in some respects, and it burns for the same reason as paper does. The material which makes the hard part of plants, and from which paper is made, is called cellulose, and it belongs to the same class of substances as starch and sugar. Celluloid is practically cellulose combined with a proportion of nitric acid, and it is a very dangerous substance. Toys made of celluloid should never be given to children, and celluloid combs should never be worn. Celluloid may be set alight by the heat of the sun, and many agonising deaths have been caused by its careless use.

How is it a Hammer Will Break a Stone and a Piece of Wood Will Not?

A stone is held together by a special kind of force in the molecules that make it up. This force is called *cohesion*, or sticking together. When the stone is broken this force is overcome, so that the molecules are forced apart. Now, if a force is to be overcome it must be by a stronger force. It must be, then, that there is more force in the blow of a hammer than there is in the blow of a piece of wood; and that is actually so. The principal reason why the hammer-stroke is more forcible is the heaviness, or mass, of the hammer. The force of a moving body depends on two things, its mass and the speed at which it moves.

Why Does a Milk-churn Taper at the Top?

The shape of a milk-churn—broad at the base and tapering towards the top—has become standardised after a great deal of experience, and it is founded on scientific principles. If a vertical line drawn from the centre of gravity of an object falls within its base, the object is in what is called stable equilibrium—that is, well-balanced and difficult to upset. This is especially the case with the milk-churn, as, the base being much wider than the top, the centre of gravity is very low down, so that a considerable exertion of force would be needed to knock it over. When the churn is full of milk, too, it would be even still more difficult to upset.

What is a Mare's Nest?

When a person has made what he thinks is an interesting discovery, and it turns out to be nothing after all, we say he has found a mare's nest. The allusion is to Mara, a kind of demon, whom people used to think had a nest filled with wonderful treasures. The same demon gives his name to nightmare.

Why Does Silver Tarnish and Gold Not?

There is always sulphur in the air in one form or another, and this sulphur acts on a good many things that may be exposed to air. Especially we notice this where we burn gas, as gas adds a good deal of sulphur to the air. No sulphur compound has any action on gold, so gold does not tarnish; but several sulphur compounds act on silver, covering the surface of it with a film of what is called sulphide of silver, which is black. When we brighten silver we rub this sulphide away; but of course this means that we are slowly losing the silver itself, and in course of time we shall notice the loss. Often people wear silver bangles next the skin, and if it happens that such a person is taking sulphur as a medicine the bangle may turn black. This is because some of the sulphur leaves the body through the skin, and so tarnishes the bangle by forming a film of sulphide of silver on it.

Head of a Boy
By Andrea della Robbia

The Portland Vase

John the Baptist as a boy
By Donatello

SCULPTURE TODAY AND TOMORROW

THE farther we go in our study of art, the more are we made aware of its kinship with life and eternity. It might seem that a picture or a statue was just something produced by a gifted man. But it has taken the world's life to produce that picture or statue.

We know that three forces lie behind any art: the instinct of beauty; the need in man's soul to create something; and what is called the spirit of the age. The first two of these forces are deathless and unchanging; the third changes with the mind of a people from century to century; but from them springs all that makes the world beautiful—its architecture, sculpture, painting, poetry.

When we think of the sculpture of today and tomorrow we are reminded how strong is the third of these forces: the spirit of the age. Two or three thousand years ago the spirit of the age produced the gods and heroes of Greece, the Mausoleum, the tomb of Tutankhamen; a little later the cathedrals of early Christianity.

It was a religious spirit, concerned with the souls of men, with ideals, with the life beyond the grave toward which all religions have reached out groping fingers. Such impulses no longer drive artists, architects, and sculptors to great works. The mind of the people, the spirit of the age, has changed. The era of portrait sculpture of human beings has usurped the era of the statues of gods and heroes.

And in thinking of the sculpture of tomorrow we have to remember that until a great need or impulse arises, no great work will be done. In order to produce a new sculpture we need a new people, a new country, a new religion. For sculpture is different from painting in this respect. Pictures hang in private dwellings; mural paintings adorn the walls of country houses; but sculpture is at home only in a hall, or church, or the open spaces of a city.

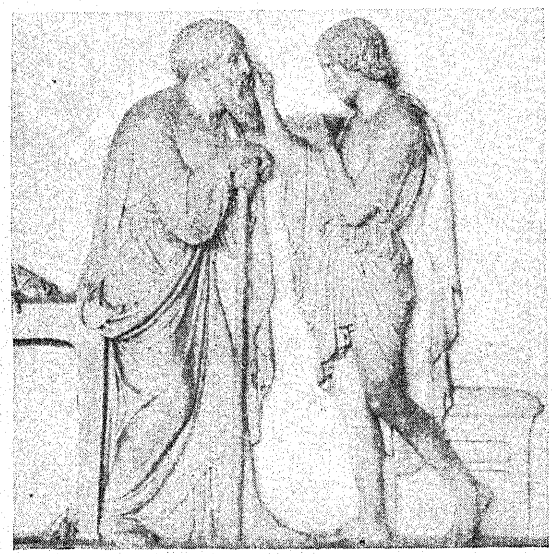
If we could sweep away all that has been created in art and begin again, something might be done that would be as stupendous as the work of Greece or Italy. In the old world we call Europe, the past, undying, leaves no room for the future; in the new world of America, South Africa, and Australia, there is room and to spare. But the mind of the people, the spirit of the age, is not friendly to a great art; beautiful things are secondary in importance to useful and productive things.

So that it would seem that we are living between two eras; we look back and we look forward. We look forward to the time when another race may arise whose beauty

sense will be overpowering, and express itself in a mass sculpture as enduring as that of Greece, or of Italy in her golden age.

In the meantime, some interesting figures of yesterday and today stand out singly and call our attention. Canova in Italy, Thorwaldsen in Denmark, Saint-Gaudens in America, Meunier in Belgium, Mestrovic in Yugo-Slavia, Epstein in England. Rodin in France we have already mentioned. Of these, Epstein and Mestrovic belong more to tomorrow than yesterday.

There have been several exhibitions of Mestrovic's work in England; many London readers will remember the remarkable display at South Kensington during the War. The sculptor's huge marbles filled great spaces in the Albert Museum, and by their very size were rather awe-inspiring. Some of them offended the English taste, some of them were greatly admired. There are a few specimens of Mestrovic's sculpture at home with us now, at South Kensington and at the Tate Gallery. A most interesting criticism waged its little war about the head of this sculptor, who walked about among his huge marbles like a dwarf among giants, unconcerned. Some people said it was the finest work that had appeared since Michael Angelo stupefied Italy with his Moses and David; others said that Mestrovic had confused hugeness with form and achievement—that it was enough for him if his marble block was of a monstrous size. Others, again, raised the old problem of the subjects suitable for sculpture, and their moral effect; while others used that easy word "epoch-making." In the meantime, Mestrovic has gone on with his work, and has since shown himself a master of small sculptures as well as of immense blocks. Those who saw his work in the Twenty-One Gallery will not easily forget the lovely bust of his wife, and the hands and wings, separate little studies, carved in wood. One of these is now in the Tate Gallery.



TOBIAS CURING HIS FATHER'S BLINDNESS—BY THORWALDSEN

Epstein, still more modern, is as different from Mestrovic as, say, the portraits of Augustus John are from those of Gainsborough. He has a horror of smoothness, of size for its own sake, of prettiness, of the beauty of marble for its own sake. His portrait busts show a looseness of execution combined with a mastery of form, so that one looks at the head of a man or woman and sees first a mass of lines and lumps, as if the sculptor had flung the clay about; then one becomes aware of the form under the looseness.

If we want to find the opposite of the modern school we go to men who had great reputations about a hundred years ago. Canova (1757–1822) and Thorwaldsen (1770–1844) had a tremendous effect on the sculpture of the last century. But Canova's coldness and smoothness seems to us now unsatisfying; we would like a little more life and a little less elegance. And Thorwaldsen seems more interesting when viewed from the point of view of his country and period than when he is viewed from the standpoint of art. Meunier is a distinct figure in European sculpture. He finds his best inspirations in the figures of the peasantry, and will probably be remembered, with Millet, as an artist who glorified human toil.

Saint-Gaudens is generally spoken of as the best sculptor America has produced. Paul Manship, Lorado Taft, Frederick MacMonnies, George Barnard, each in a different way have done good work. But the world is still awaiting in America a sculptor who shall be American and not imitation French or imitation Italian or imitation Greek. As we said in our chapters on painting, America is a young nation, and in art is only just learning to walk alone.

FAMOUS SCULPTURES OF THE WORLD

We have looked through the history of Sculpture, noting the work of the chief sculptors of all time. Here before we leave sculpture for architecture, we bring together a little gallery of monuments and statues.

CHILDHOOD
BY DONATELLO

A LION OF ST. MARK'S,
VENICE

NARCISSUS, FOUND AT
POMPEII

PLAYFULNESS. BY THE AMERICAN SCULPTOR PAUL MANSHIP

A 14TH-CENTURY STATUE
OF THE VIRGIN AND CHILD

JOHN THE BAPTIST
BY ALFRED LENOIR

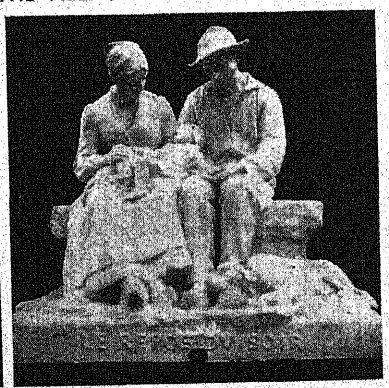
PSYCHE
BY JAMES PRADIER

CHILDREN AT PLAY, BY RAPHAEL C. PEYRE

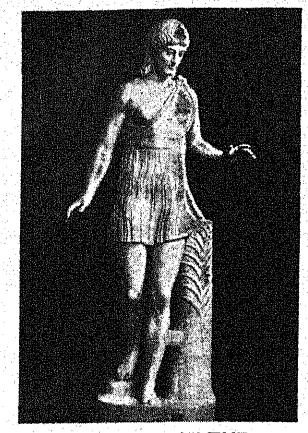
IN THE FIELDS, BY ALFRED BOUCHER

GRANDMOTHER'S KISS
BY JEAN DAMPT

OEDIPUS AND THE SHEPHERD
BY A. CHAUDET



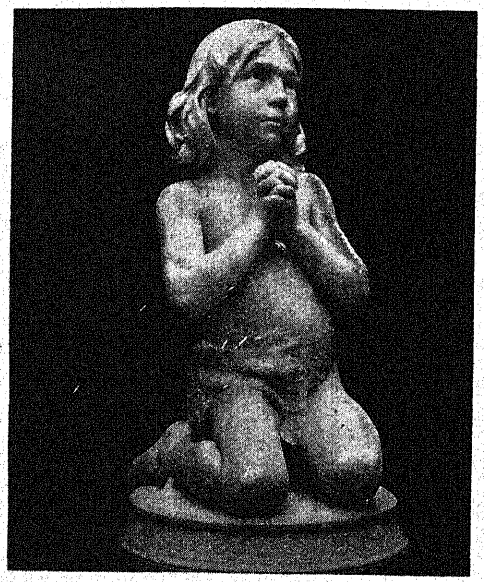
EVENING REST,
BY HENRI COUTHEILLAS



A RUNNER IN THE OLYMPIC GAMES

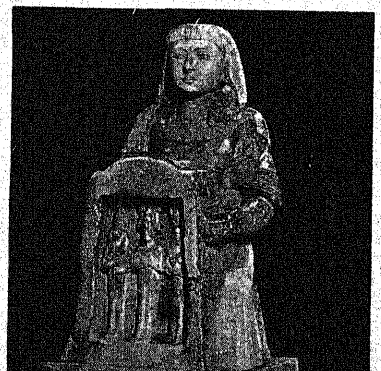
THE BORGHESE MARS. AN ANTIQUE SCULPTURE IN THE LOUVRE

DONATELLO'S DAVID, IN THE NATIONAL MUSEUM, FLORENCE

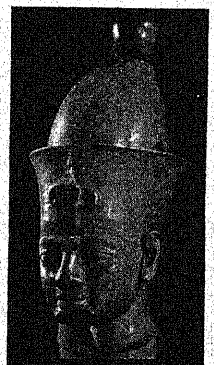


THE PRAYER BY JEAN DAMPT

CUPID, BY ÉTIENNE MAURICE FALCONET



PANEHSI, AN AGENT FOR THE SUDAN IN THE 19TH DYNASTY



THOTHMES III. KING OF EGYPT, 1550 B.C.

THE MADONNA AND CHILD BY ANDREA DELLA ROBBIA

THE SLEEPING WARRIOR, GASTON DE FOIX—BY AN UNKNOWN ARTIST

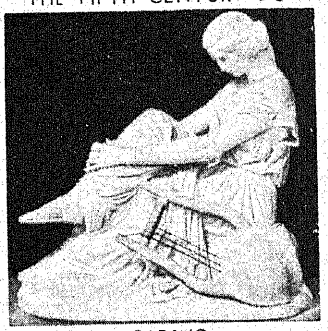
TEUCER
BY SIR HAMO THORNYCROFT

MYSTERIARCH
BY SIR GEORGE FRAMPTON

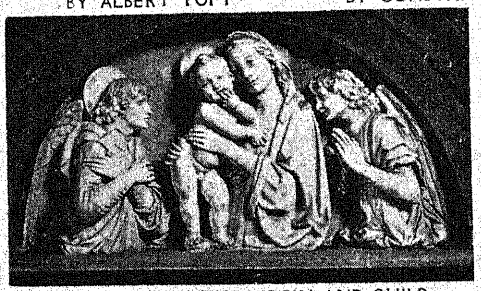
AN ANCIENT GREEK STATUE OF THE FIFTH CENTURY B.C

CONTEMPLATION
BY ALBERT TOFT

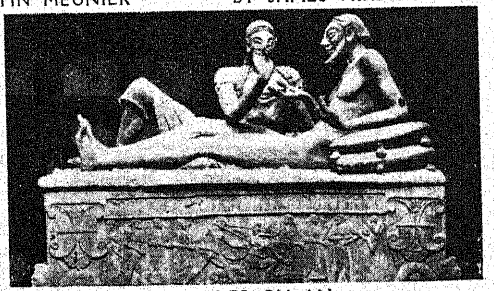
THE PUDDLERS
BY CONSTANTIN MEUNIER



SAPPHO
BY JAMES PRADIER



A GROUP WITH THE VIRGIN AND CHILD
BY THE SCHOOL OF ANDREA DELLA ROBBIA



FIGURES ON AN
ETRUSCAN SARCOPHAGUS

The pictures on these pages are reproduced by courtesy of Messrs. Alinari, Anderson Bonnaire, Giraudon, and others

We need not greatly trouble about notices such as this, so long as we do no damage to growing crops, or to game that is being preserved

LAWS THAT WE SHOULD KNOW

WE have been thinking of the Law, and its authority over us all, high or low. Too often it happens that people regard the Law as some dark and sinister figure intent on preventing us from living our lives in the ways we would choose. They speak of Law as if it were the enemy of freedom; as if our pathways in life were bordered with such notices as *Trespassers will be prosecuted,* and *Keep off the grass.*

This is an entirely wrong point of view. Law is order, and order is the greatest freedom for the greatest number. Disorder is not freedom, it is only excess. If there were no laws might would be right. Civilisation has grown out of Law.

The foundation of our laws is the inspiration of Moses. If all of us kept the Ten Commandments serious crime would disappear, our prisons would be empty, and the police would become extinct. But that is an ideal we are not likely to see realised. There have been, are, and ever will be, those who covet the goods of others, those who steal, and even those who kill.

In ancient days communities took measures to repress such people among them, and from the practices of these communities there has gradually evolved the Common Law of England. This Common Law is the custom of the people. It is the justice of our remote ancestors, and from it has evolved our wonderfully free and flexible Constitution. In addition to the Common Law, however, there is a great deal of Statute law—special Acts of Parliament passed to deal with matters that evolve from time to time as the habits and customs of the people change. Our ancestors had no customs regulating railways, motor-cars, flying machines, telephones, post offices, and the innumerable products of modern invention, because in their days such things were undreamed of; yet even in our modern Statute law we can trace the guiding principles of the Common Law—the great principles of justice and equity which govern the relations of man with man.

Some people know quite a lot of law, others know a little, and some know none at all, but the curious thing is that, according to the law itself, everyone is supposed to know it all. The reason for this is that if anyone breaking the law could plead in defence that he did not know he was doing wrong most wrongdoers would escape punishment, because it is impossible to prove the extent of a person's knowledge or ignorance.

There is, therefore, all the more reason why we should know what we may do and what we may not do, and when we think out the reasons why some acts are forbidden, though apparently innocent in themselves, we realise that in having to give up a little of our own personal freedom we enlarge the freedom of others.

THE BAD OLD DAYS WHEN MEN WERE HANGED FOR STEALING

All the many things which are punishable by law are, strictly speaking, crimes. Highway robbery is a crime, and so is riding a bicycle on a footpath ; but there is a vast difference between these two crimes. Most of us have cycled on a footpath, but we are not therefore criminals. We propose, therefore, to speak here of such things as " wrongful acts."

Wrongful acts may be divided roughly into two classes—those against the person, and those against property. Wrongful acts against the person are now treated as the more serious, although not very long ago there was no difference between the punishment for murder and the punishment for sheep stealing ; hanging was the penalty for both. Happily that barbarism has passed away, and the extreme penalty is now imposed only for murder, treason, and arson (setting buildings on fire) within the Port of London. The tendency nowadays is all towards leniency. It is recognised that those unfortunate people who lapse into wrongdoing are in most cases creatures of circumstance and environment, and that if given the opportunity to redeem their characters in different surroundings they will atone for their offence.

THE LAW THAT GROWS MORE HUMANE AND MORE COMPLICATED

But, if the law is now more humane, it is every year more complicated. Acts are passed creating new offences, and it seems to become more and more difficult for us to keep within the law. But if we study a list of wrongful acts, and consider why they are wrong, we see that there is always a reason. Take the following list of wrongful acts which are directed against the person :

Letting off fireworks in the street
Playing football in the street
Riding behind vehicles
Cycling on the pavement
Cycling after dark without a light

If we think for a minute we shall realise that all these things are punishable for the simple reason that they endanger either our own life or the lives of others. If we let off fireworks in the street it is possible that we shall either burn the clothing or injure the eyesight of passers-by, or perhaps cause a horse to bolt. If we ride a bicycle on the footpath we make the footpath dangerous for pedestrians. If we cycle after dusk without a lighted lamp we run the risk of being knocked down and injured by a motor-car.

The object of the law is not to prevent us from enjoying ourselves but to prevent us from injuring ourselves or others. Therefore, if a policeman interferes when we are doing any of these wrongful acts, it is not because he is a spoil-sport, but because he is carrying out his duty of safeguarding the lives of us all.

Cycling on the footpath may seem a harmless amusement, but think what the result would be if all cyclists used the footpath. And, if cyclists, why not motorists ?

THE OLD AND VERY WRONG IDEA THAT FINDINGS ARE KEEPINGS

In the same way let us consider those acts which damage property or deprive people of their quiet enjoyment of it, such acts as :

Breaking windows
Scratching the bodies of motor-cars
Chalking doors or fences
Spoiling new paint work

If we throw a stone and break a window, or damage a man's car or fences, we deprive him of the quiet and full enjoyment of his property, and this is almost as bad as actually stealing it.

We all know that to steal is a very grave offence, but some people do not know that if we find a purse, or any valuable article, in the street or elsewhere, it is stealing to pick it up and keep it without trying to find the owner. *Findings are not keepings.* If we find anything of value in the streets we should take it to the police station ; if we do not we run the risk of being charged with stealing by finding. We may think this very stupid of the law, but we should not think it stupid if we had lost something we valued highly, and the police returned it to us because someone knowing the law had found it and taken it to the police station.

Here is a list of another eight things which the law says we must not do :

We must not obstruct the pathway

We must not throw things at people in the street, or insult them in any way

We must not travel in a train, bus, or tram without intending to pay our fare

We must not, without proper reason, ring the doorbells of houses

We must not be cruel to animals

We must not pick flowers in any private garden or window box

We must not place nails, stones, or any other things in the roadway likely to cause damage to any vehicle, or injury to its occupants

We must not prevent a policeman from doing his duty

THE THINGS WE MAY DO AT THE RIGHT TIME AND IN THE RIGHT PLACE

We may wonder what there is left that we may do, and the answer is that we can do almost anything we like if only we do it at the right time and in the right place. We can cycle in the road, but not on the pathway. We can play football in the football field, but not in the street. We can ring bells, but not to annoy people. We may pick flowers, but they must be ours. We can travel on a tram if we pay our fare. We can let off fireworks if we do so in a private place, and we can cycle without a lighted lamp in the daytime.

We should all be very thankful that we are living in these days and not in the days of fifty years ago. In those days young children were made to work at an early age; their education was neglected, and their health was ruined by the surroundings in which they had to work. During recent years, however, Act after Act has been passed to regulate the employment of children. Nowadays the local authorities may make by-laws fixing the age below which children shall not be employed or prohibiting the employment of children in certain harmful occupations.

HOW THE LAW LOOKS AFTER THE BOYS AND GIRLS OF TODAY

Generally speaking, it is illegal for any child to be employed between the hours of 9 p.m and 6 a.m. A child under eleven may not engage in street trading, and may not be employed to carry articles so heavy as likely to cause him injury, or in any occupation likely to injure his health.

In the same way the law does not consider it right that children should be free to take part in public entertainments. Except in the case of occasional entertainments for charitable objects, it is illegal to employ any boy under 14 or any girl under 16 on premises licensed for public entertainments after 9 o'clock at night. There are exceptions to this general rule, because in some entertainments it is sometimes necessary to have child performers, but before these children can be engaged an application has to be made to a magistrate. The law is even more strict where it is proposed to engage children for acrobatic or circus performances. Without a licence from a magistrate it is illegal for a boy under 16 or a girl under 18 to take part in such performances. The law nowadays looks after children in every possible way. Boys under 13 and girls of any age must not be employed in mines.

We read on another page of little children who were used by chimney sweeps for sweeping chimneys in the days of our grandfathers. Little boys had to climb up inside the chimney with a rope, dragging the brush after them. There is little doubt that many timid and nervous children were frightened to death by this savage custom. Nowadays it is illegal for any person under 16 to assist in the cleaning of a chimney, and no one under 21 may climb a chimney or enter a flue for the purpose of sweeping it.

Scarcely a year passes without the law taking further steps to safeguard children, both from physical and moral injury.

THE LAW THAT GUARDS CHILDREN FROM THE DANGER OF ALCOHOL

At one time the children of tramps, gypsies, and others who lead vagrant lives received little or no education, but it is now an offence for a person who habitually wanders from place to place to take with him any child over five years, and by so doing prevent it from receiving an elementary education.

Parents who used foolishly to give alcohol to children, in the old days when people believed in alcohol, must not do so now, for the law knows that alcohol is injurious for young people, stunting their growth, enfeebling their minds, and leading them to acquire an early taste for what they are far better without. The Children's Act, a charter safeguarding the well-being of children, makes it an offence to give alcohol to a child under five, except in urgent necessity, or under the orders of a doctor. This is certainly a beginning, but the fixing of the age at five is ridiculous.

All children should know, also, that they must not go into the bars of public-houses,

or other premises where drink is sold. Here, again, the law is safeguarding the interests of the child, but this restriction does not apply to the refreshment rooms at railway stations.

Here is another list of things that children must not do:

They must not attend police courts
They must not go to pawnbrokers to pawn articles, whether for themselves or others
They must not sell old metal to marine store dealers
They must not beg in the streets
They must not, if under 16, buy cigarettes or cigarette papers

In 1903 a Royal Commission on physical training enquired thoroughly into the question of smoking by children, and unanimously reported that tobacco smoking had a most harmful effect on their development. The Committee went so far as to recommend that the sale of cigarettes should be prohibited in sweet-shops and other shops frequented by children, but this recommendation was considered unfair to thousands of small shopkeepers who have to cater for the requirements of both young and old.

WHY YOU NEED NOT BE AFRAID OF THE TRESPASS BOARDS

Most of us have seen boards bearing the words *Trespassers will be prosecuted*, but we need not unduly concern ourselves about such notices. Of course, we should not think of walking about in a private garden, or walking into a house if we saw the door open, but it is another thing when we are tramping across the country to find ourselves faced with a notice threatening us with penalties if we walk across the land. *We may safely disregard these notices so long as we do not walk across fields where there are crops growing or where game is preserved.*

It is true that an action for damages can be brought by the owner of the land if another person walks across it, and, strictly speaking, it is not necessary for the owner of the land to prove that he has suffered any damage; the law assumes that some damage has been caused. There is a legal maxim which says in effect that where a man has a right he has a remedy to enforce it, and as a man has a right to the privacy of his own land, the law provides him with a remedy if that privacy is invaded. But his remedy is in the form of an action for the damage we have done to his property, and, if he threatens proceedings, all we have to do is to offer him threepence in settlement of any claim he may have. If he refuses this offer he would have to prove that the damage we did amounted to more than threepence, and this he would find it difficult to do if the land we had walked on was simply pasture or woodland.

Trespassing for unlawful purposes is, of course, an entirely different matter. This we must not do.

WHY PEOPLE ARE PUNISHED FOR ALLOWING ANIMALS TO STRAY

There is another kind of trespass which is not generally understood, and that is allowing any animals to stray on to the land of other people. If we keep animals it is our duty to keep the land on which they graze properly fenced, and if we omit to do so, and the animals stray on the land of other people and damage crops or flowers or fruit trees, we are liable for the damage.

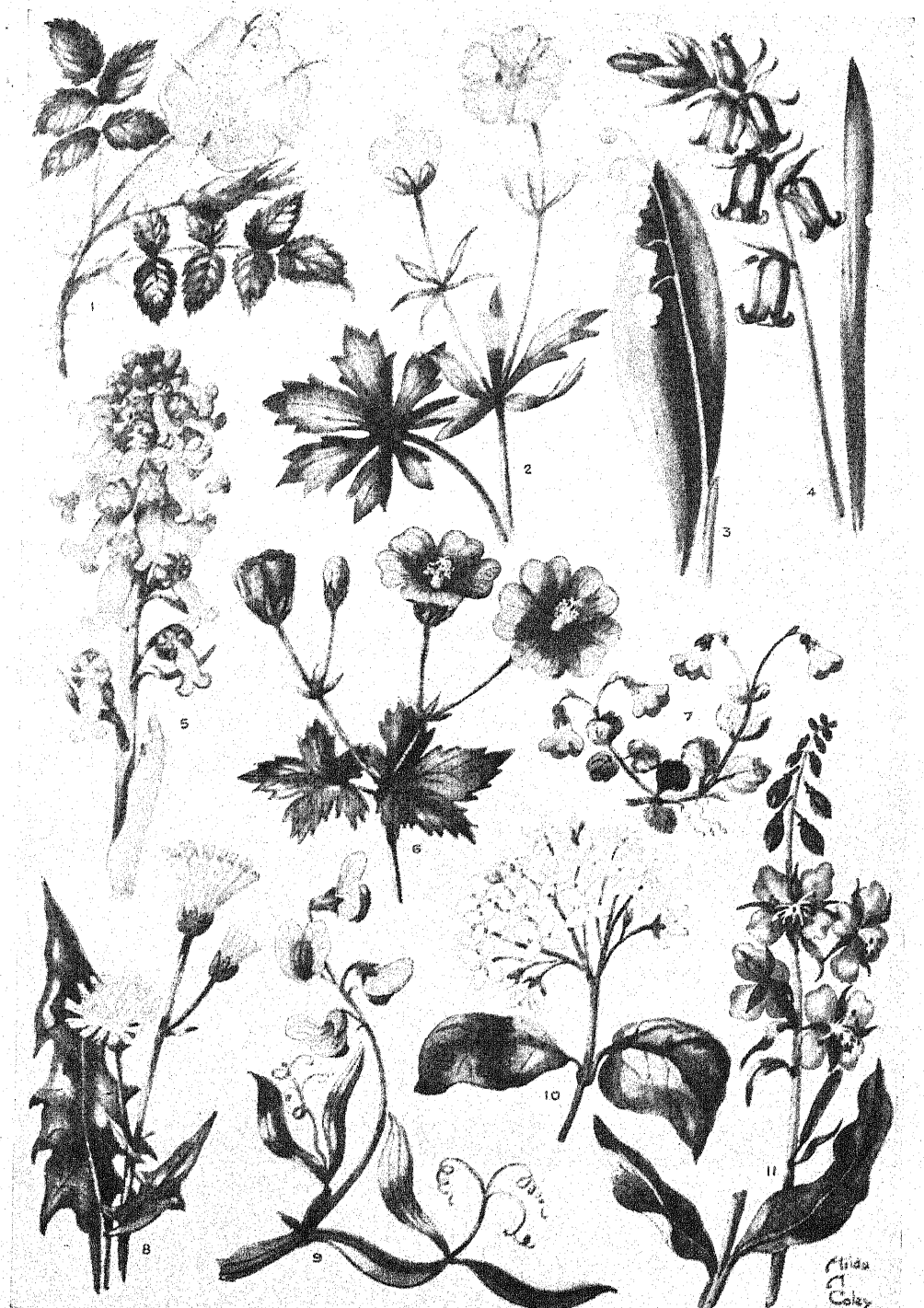
Before the Children's Act was passed in 1908, children who committed wrongful acts were dealt with at police courts and before magistrates as grown-ups; but there are now special courts known as Children's Courts, and when cases are being heard the general public is not admitted. The praiseworthy intention of this part of the Children's Act is to prevent children from becoming associated with grown-up wrongdoers, for the Act provides that young persons under 16 shall not be allowed, while being taken to or from the court, or while waiting for the case to be heard, to associate with grown-ups charged with an offence. But this great children's charter went even farther than that, for it took steps to prevent young people from being sent to prison, so that they should not acquire a prison taint.

Now, if a child is guilty of an offence the magistrate can dismiss the charge if the child promises to behave in future, or can order that the child shall be placed in the care of some fit person. On the other hand, it should be remembered that the magistrate has power to order children to be whipped, or to order the parents or guardians of children to pay a fine.

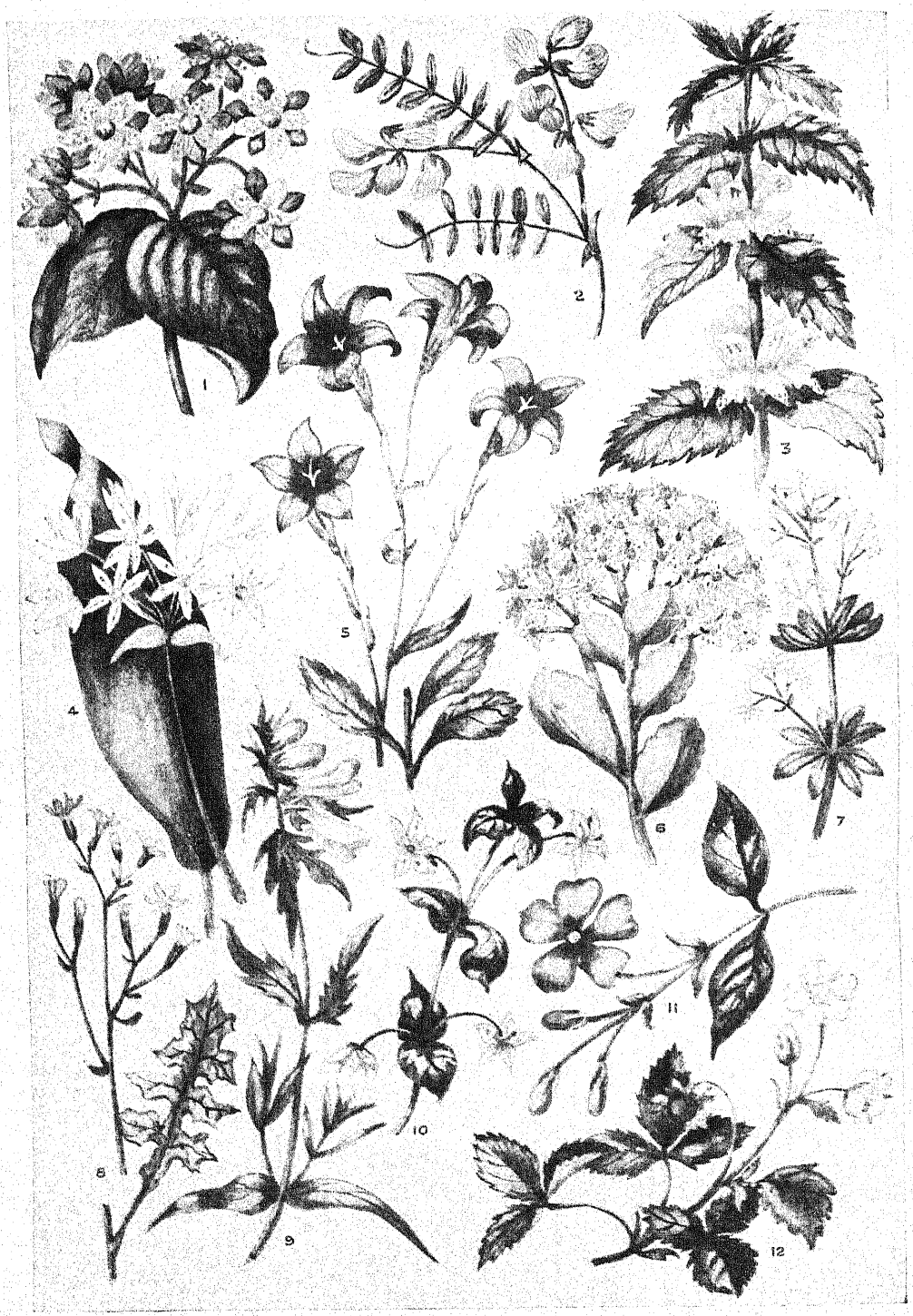
WHY ALL SHOULD HELP THE LAW THAT HELPS US ALL

Perhaps we now begin to realise that the Law is something to help us, and that there is no need to grow up in the belief that it is dangerous and unkind. The law is always seeking to be helpful to us all, and it is our duty in return to help the Law by not doing any of those acts which our conscience tells us we ought not to do.

FLOWERS OF THE WOODLAND



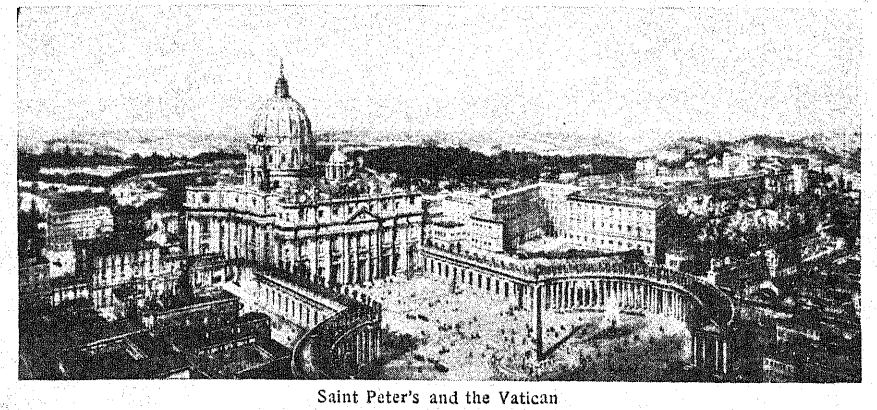
1. DOWNY ROSE 2. GOLDILOCKS 3. LILY OF THE VALLEY 4. HYACINTH 5. BIRD'S-NEST 6. WOOD CRANE'S-BILL 7. LINNAEA BOREALIS 8. MARSH HAWK'S-BEARD 9. NARROW-LEAVED EVERLASTING PEA 10. CORNEL 11. ROSEBAY



1. TUTSAN 2. BITTER VETCH 3. YELLOW DEAD NETTLE 4. RAMSON 5. SPREADING BELLFLOWER
6. ORPINE 7. SWEET WOODRUFF 8. IVY-LEAVED LETTUCE 9. COMMON YELLOW COW-WHEAT
10. YELLOW PIMPERNEL 11. LESSER PERIWINKLE 12. WOOD STRAWBERRY

1. IVY-LEAVED SOWBREAD 2. COMMON ST. JOHN'S WORT 3. BUSH VETCH 4. OXLIP 5. BARBERRY
6. WHITE STAR OF BETHLEHEM 7. FETID IRIS 8. SNOWDROP 9. ENCHANTER'S NIGHTSHADE
10. HERB BENET 11. DARK WOOD VIOLET 12. GIANT BELLFLOWER

1. TUBEROUS BITTER VETCH 2. TRAILING ROSE 3. WOOD FORGET-ME-NOT 4. YELLOW STAR OF BETHLEHEM 5. DAFFODIL 6. CRESTED COW-WHEAT 7. BIRD-CHERRY 8. PURPLE GROMWELL 9. MOUNTAIN SPEEDWELL 10. PINE BIRD'S-NEST 11. WOOD GERMANDER



Saint Peter's and the Vatican

ITALY AS IT IS

ITALIA, as the Italians themselves call their lovely land, has played a great part in European civilisation, and is destined to play a great part in the future.

How is it that a country so small was once mistress of the civilised nations, and has, ever since the age of its domination, given such great gifts to Europe in all the branches of the arts of life ?

The answer to this question is manifold, but one important reason for Italy's importance in the ancient and medieval worlds, and in the world of today, is undoubtedly her geographical situation. The great civilisations of the western world have grown up round the Mediterranean. Of that sea the Italian peninsula, with its pendant island of Sicily, is the natural centre. Italy is the natural halting place, the natural place of exchange, for the merchandise of East and West. The merchants of Venice, Florence, and Genoa were the links between the merchants of London, Amsterdam, and Hamburg, and those of Constantinople, Asia Minor, and India in the Middle Ages.

If Great Britain has captured the keys of the sea, the main line of communication between East and West—Gibraltar on the west and Suez on the east—Italy holds the centre and controls the narrow passage dividing Sicily from African Tunis, though even here Britain has laid her hand on Malta, and has created a great naval station. Italy's wonderful situation is one of the reasons which have made Britain, the greatest of sea-powers, a constant friend of the Italian people. The friendship is essential to the interests of both countries.

Before the war Italy had strengthened herself in the Mediterranean by establishing herself on the African mainland in Tripoli. After the war she made herself much stronger by extending her Adriatic frontier to include the land on the east of the Gulf of Venice. In this way she took in the naval port of Pola, and the old commercial port of Trieste, the outlet for much of the produce of the old Austrian Empire ; and though she has come to a compromise with her new neighbour Yugo-Slavia on the question of Fiume, she is the dominating power in that great port too. Then she has made her frontier more secure by pushing it up through Italian-speaking Tirol, and through a part of German-speaking Tirol, as far as the Brenner Pass which leads over the Tirolese Alps from Innsbruck, and has been for centuries the road by which German armies have passed over and down the valley of the swift Adige to Verona on the Italian plain. By

the War Italy increased her area of 110,632 square miles by 7550 square miles, and her population of just over 37 millions to nearly 39 millions.

If we look at the map of Italy we see that the northern frontier of Italy is a vast semi-circle made by the great Alpine range, and that it has been extended on the east, so that she has now what the soldiers call a strategical frontier.

THE HIGHWAYS OF TRADE THROUGH ITALY'S MOUNTAIN WALL

Those mighty mountains are the sentinels which guard the rich plains of northern Italy from the armies of northern Europe. Across them there are passes which have proved possible for armies, but these passes are now pierced by great railways which carry a constant stream of goods, and a constant stream of visitors attracted by the radiant sunlight and colour of this lovely country.

And, apart from these physical splendours, Italy has treasures unequalled in Europe, treasures of architecture, of art, of craftsmanship, and of a tradition of life. Italian civilisation is the mother civilisation of Europe in government, in religion, and in the general ordering of everyday life, and everyone who studies European history is drawn in the end to Italy, where he can read its stages onward from the fabled story of the founding of Rome in the eighth century before Christ. That is why every traveller to Italy, even though he goes for some ordinary purpose such as selling machines or in search of sunshine, finds himself a pilgrim.

THE WONDERFUL REALMS IN WHICH THE TRAVELLER MAY DWELL

The stranger visiting Italy for the first time looks back into the past. He goes there to turn over the pages of history. He follows the ancient pilgrim's way to Rome, the Eternal City—the Rome of the Caesars, of St. Peter and St. Paul, the mother-city of European civilisation and of Christendom—to walk in the Forum where Roman history was made, to visit the shrines of the martyrs, or to see and hear the service in St. Peter's, the greatest church in the world.

Or he turns his steps, perhaps, to Paestum, to visit the four great temples looking down on the Mediterranean, dating from the sixth to the second century B.C., unequalled outside Greece itself, and then finds himself in the presence of a civilisation which preceded the Romans. Or he may go to Pompeii, where the houses of wealthy Romans have been uncovered so that we can see how they lived, ate, and slept; or to Naples, with her incomparable situation, her many memories, her wonderful aquarium, and her great museum. He goes to Ravenna, where the Byzantine rulers of Italy held their court, and where Dante sleeps, to see the relics of the darker days of the Roman Empire. Then the traveller must visit the great cities of the Middle Ages and the Renaissance, with their innumerable treasures of architecture, sculpture, and painting.

There is Florence, girdled with beauty, the mother-city of a hundred artists; Pisa with the loveliest green place in the world, adorned by an incomparable group of buildings; Genoa the Proud, the great seaport whose houses climb one on top of the other up the steep slope from the sea, city of Columbus and Mazzini; Venice, throned on her hundred isles "a fairy city of the heart, rising like water-columns from the sea," with her canals lined with the magnificent palaces of those merchant princes who formed the link between East and West; and Milan with her great, magnificent cathedral. A score of smaller towns are rich in memories.

A REMARKABLE FACT ABOUT THE MAN-POWER OF ITALY

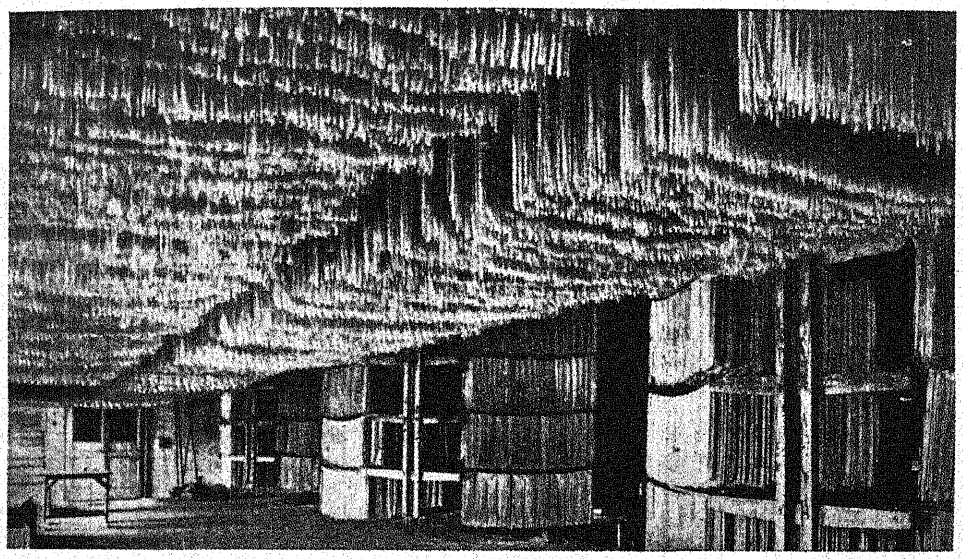
But we read of the glories of Italy's past elsewhere; here we are to read of Italy as she is today.

The Italian people are proud of their splendid monuments, and they do not discard the old ways; but they do look to a new and reconstructed Italy. They think that in the past Italians cared too much for art and music and poetry, and too little for science and industry; and more than ever now Italy has moved forward on modern lines and is on the way to becoming a rich industrial nation. In this she has some advantages. Although she lost half a milion dead in the War, and a million wounded and disabled, she was the only one of the great fighting countries who came out of the War with her man-power increased. This was due to two things—the return of many reservists from foreign countries for war service, and the fact that the young men had to stay at home as there was no opportunity for emigration when the War ended.

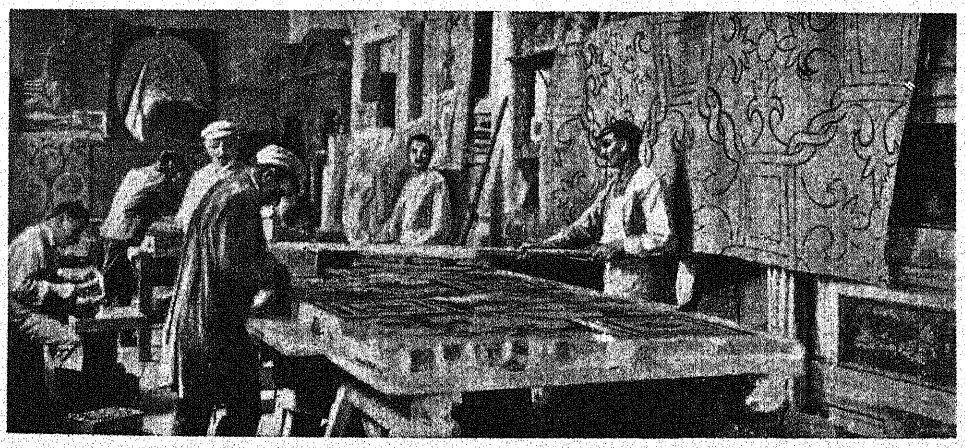
Yet Italy suffered heavily in the War, especially in money and goods, and she was

THREE GREAT INDUSTRIES OF ITALY

AN ALABASTER WORKSHOP IN VOLTERRA



A DRYING ROOM IN A MACARONI FACTORY IN MILAN



CLEVER CRAFTSMEN OF LOMBARDY AT WORK ON BEAUTIFUL MARBLE MOSAICS

not a rich country. Happily, however, after a troubled period of strikes and industrial disturbances verging on revolution, she turned to work more quickly than other countries, and soon became a land full of abounding energy and astonishing vitality, everyone working and working hard, with clear confidence in a great and prosperous future. That is why many Italian people who love liberty and dislike despotism have accepted the dictatorship established by the Fascist Party and their leader Signor Mussolini. It is because his government is strongly national, and looks forward instead of backward, because he wants to make Italy strong commercially and politically. Under this revolution—for it is nothing less—political Italy becomes one vast constituency. The voter does not vote for a single local member, but for a party list, and the party which obtains even a majority of one vote is entitled to two-thirds of the seats in Parliament.

THE GARDEN OF EUROPE IN THE SHADOW OF THE HILLS

" All roads lead to Rome," said the proverb. Those roads today are iron roads, but they follow the old routes marked out by the northern mountain barrier. We may enter today, as in the past, along the narrow strip of the Riviera coastline between the hills and the sea, by way of Nice and Mentone and San Remo, and so to Genoa. Sheltered from the north winds, this beautiful strip of land is the garden of Europe, gay with flowers, with palms and semi-tropical trees and fruits. Or we may enter Italy by the Mont Cenis tunnel, descending rapidly to Turin, the centre of a network of railways radiating in all directions. We may travel under the Simplon Pass, from Brigue in the Rhone Valley to Domodossola on the southern side, and on to Milan, the principal city of Lombardy; or by the St. Gothard railway in Switzerland to Bellinzona, and on through the olive groves down to the shores of Lake Maggiore, or to Lake Lugano and Lake Como; or from the Engadine to the wide Valtellina, the valley which carries the waters of the Adda to Lake Como, and then along the eastern side of the lake to the Italian plains; or, again, over the Brenner Pass to Bozen, Trent, and Verona. All these ways have their own beauty and rare charm.

Once in Italy, the main lines of communication are determined by the shape of the country. Northern Italy—Piedmont, Lombardy, and Venetia—forms the valley of the Po, which rises more than 6000 feet above the sea in two small lakes on Mount Viso, sweeps rapidly down to the Piedmontese plain as a mountain torrent, and makes its way across the great stretches of unbroken land in the north until it is about 25 miles from the Adriatic, when it divides into two main streams, which pass slowly across its wide delta to the sea.

THE MOUNTAINS THAT RUN THROUGH ITALY LIKE A BACKBONE

On its way it receives the waters of many rivers coming down the valleys from the high Alps on its left or from the Apennines on its right. The other great river of the northern plain is the Adige, along which the old road from the Brenner Pass comes down to Verona. The Adige looks as if it would also join the Po, but it makes a sharp turn to the east and enters the Adriatic a little to the north.

The other communications in Italy are determined by the Apennines, running like a backbone down the country and ending in the " toe of the boot " in Calabria. The eastern plain is narrow, the rivers swift, and there are no good harbours except those of Ancona and the modern port of Bari. On the west the slope is rather wider, and there are two considerable rivers, the Arno flowing past Arezzo, Florence, and Pisa to the sea, and the Tiber, on whose banks Rome is built. The west coast is rich in good harbours—Genoa, Leghorn, and Naples; and on the northern coast of Sicily stands Palermo.

THE ACTIVE VOLCANOES WHICH SPREAD FIRE AND DESTRUCTION FOR MILES

A considerable section of the mountain system of Italy is volcanic, and the volcanoes of Sicily (Mount Etna) and of Campania (Vesuvius) are still active. Etna has dealt terrible destruction on the villages clustering around her in our own day. The first eruption of Vesuvius of which we have any record took place in A.D. 79, when Herculaneum and Pompeii were overwhelmed, and the mountain has been active, and at intervals violently so, ever since. Other cones in the same district give forth steam and gases, but some have been silent for ages, and the craters are turned into lakes around which all sorts of legends have gathered.

The map of Italy shows us that but for the rich and level valley of the Po, which at one time appears to have been covered

by the sea, Italy is a mountainous and rugged country, but the soil is rich from the age-long practice of good farming. The people are not content with cultivating the plain; they have terraced the sides of the mountains as the Incas did in Peru, and it is extraordinary to find these terraces held up by stone walls. The climate varies very much in different parts of the country according to the lie of the mountains. Italy in summer is extremely hot, especially in the south; but on the northern plains cold winds sweep down from the mountains in winter, and the winter temperature of Turin is actually lower than that of Copenhagen. In the highlands of middle Italy there is a long winter, and wolves are not unknown. Snow lies on the ground for weeks in places where the warm Mediterranean winds are shut out by the mountains.

THE GREAT RANGE OF PLANTS GROWING ON THE HILLS AND PLAINS

This variation in climate explains how it is that semi-tropical plants—and even cotton, rice, and cane sugar—are grown in some parts of Italy, while in the north the olive grows only in sheltered places. On the high slopes of the mountains there are pine forests; as they sink to the plain there are groves of chestnut and of olive. The ilex and the cypress are other familiar trees which give a charm to the landscape. In some parts of the country chestnuts form an important part of the food supply, and the olive in certain districts yields the best oil in the world. Another tree valuable in the Italian economy is the mulberry, whose leaves feed the silkworm. But it is difficult to compete with the raw silk of the Chinese and the Japanese, because in those countries the leaves are stripped three times a year from the trees which are grown in the form of bushes and not as in Italy.

On the lower slopes of the hills the vine is grown, not in neat rows as in France and Germany, but twining up pollarded trees, oak and elm, or growing high on poles. Corn, olives, wine, and cheese have been the staple foods of the Italian people from time immemorial. Macaroni, which is a favourite food, is prepared from corn. Wheat, rye, millet, maize, potatoes, and turnips are important crops. Two specially important industrial crops are tobacco, which is a State monopoly, and hemp. The farmers also grow a multitude of green crops for their cattle, horses, and sheep. Goats are everywhere in Italy, and complaints are made that they spoil the forests by nibbling the young trees.

Italy has always, even in Roman days, been compelled to import corn, and before the War she obtained it chiefly from Rumania and Russia, and is now beginning to receive it from those sources once more.

THE PLOUGH DRAWN BY OXEN AS IN THE GREAT DAYS OF ROME

Fruit-growing is an important industry, especially in the south. In addition to groves of oranges and lemons, there are orchards of cherries, apricots, peaches, apples, and pears, which make the Italian spring and fruit seasons very beautiful. Almonds, walnuts, filberts, pistachio nuts, and figs are also grown.

In northern Italy the farmers are very up-to-date, with all manner of new machines, but in the wilder districts of the centre and the south the oxen still bear the yoke, and drag a primitive plough, just such a one as Cincinnatus may have used on his farm 2500 years ago.

Italy still has nine million people—more than a fifth of all her people—engaged in agriculture. It seems odd to count among the agricultural workers children of ten, but school hours are over early in the day, and in remoter districts all work in the fields, men, women, and children, the younger children looking after the goats, helping with the cattle, and so on. Italy is a southern country, where the children grow up early, and very soon take their places in the work of life.

THE MULTITUDE OF PEOPLE WHO LEFT ITALY IN THE DAYS BEFORE THE WAR

Until our time Italy has been a poor country, as agricultural countries usually are. The country is small, and much of it is rock and mountain; and Italy's sons have emigrated in vast numbers. Before the War 650,000 Italians left their country every year, so that there is outside Italy today, chiefly in America, an Italian population of seven millions. Many of them return when they have made their fortunes, and they send home from the country of their exile considerable sums of money to their friends and relations.

The reason why Italy has been poor, and has had few industries on a great scale, is that she has no hard coal, though there is a certain amount of lignite, or brown soft coal. Since the War this has been a very serious matter. Italy has always had supplies of cheap English coal, but English

coal since the War has been very dear, and the low exchange value of the Italian lira made buying still more difficult. Italy could not buy for her railways and her industries, and her locomotives were built to burn good English coal. Before the War she imported every year nine million tons of coal to supply her busy factories. But New Italy is ingenious and determined. Her scientific men have realised that, even though she has no black coal, she has "white coal." That white coal is the power locked up in the hundreds of mountain torrents and rivers which are wasting their energy as they tumble down the steep slopes of the Alps and the Apennines. These are being banked up in great reservoirs, and giant turbines are being installed to turn their pent-up energy into electric power for the factories and the railways, though it will always be necessary to import a certain amount of coal.

THE TREMENDOUS WATER-POWER THAT IS WAITING TO BE USED

The horse-power available for use from the rivers and lakes of Italy is 55 for each square mile of surface, whereas in France it is only 27, and in England 11. The first electric station run by water-power in Italy was built in 1892, and the electrification of the railways has already begun. There are now about 40 great reservoirs in the Alpine region, and four in Sardinia. Others are being built in the Alps, the Apennines, and in Sicily.

Italian engineers have a vision of a single network of transmission lines which will carry power of all sorts to every town, village and factory. The advantage of this single network would be that the Italians could use the water from the Alps, which is at its highest when the snows begin to melt, and in autumn and winter could make use of the swollen waters of the centre and south. The engineers have constructed great irrigation works to improve lands which before produced scanty crops, and much marsh land has been reclaimed, notably on the Ravenna, Roman, and Tuscan marshes, in the delta of the River Po, and in the neighbourhood of Venice. The great navigable canal which is being constructed between Venice, Milan, and Lake Maggiore; the huge breakwaters at Genoa and Naples; the mountain railways, the cable ways in the mountains which will carry goods and sometimes passengers up to the highest points and across dangerous ravines, give us some idea of the enterprise and skill of the engineers who are carrying on the great traditions of ancient Rome.

Side by side with the quiet country life which has gone on through the ages, is this new industrial Italy, determined to be in the front rank of science and industry.

ITALY TAKING HER PLACE AMONG THE GREAT INDUSTRIAL NATIONS

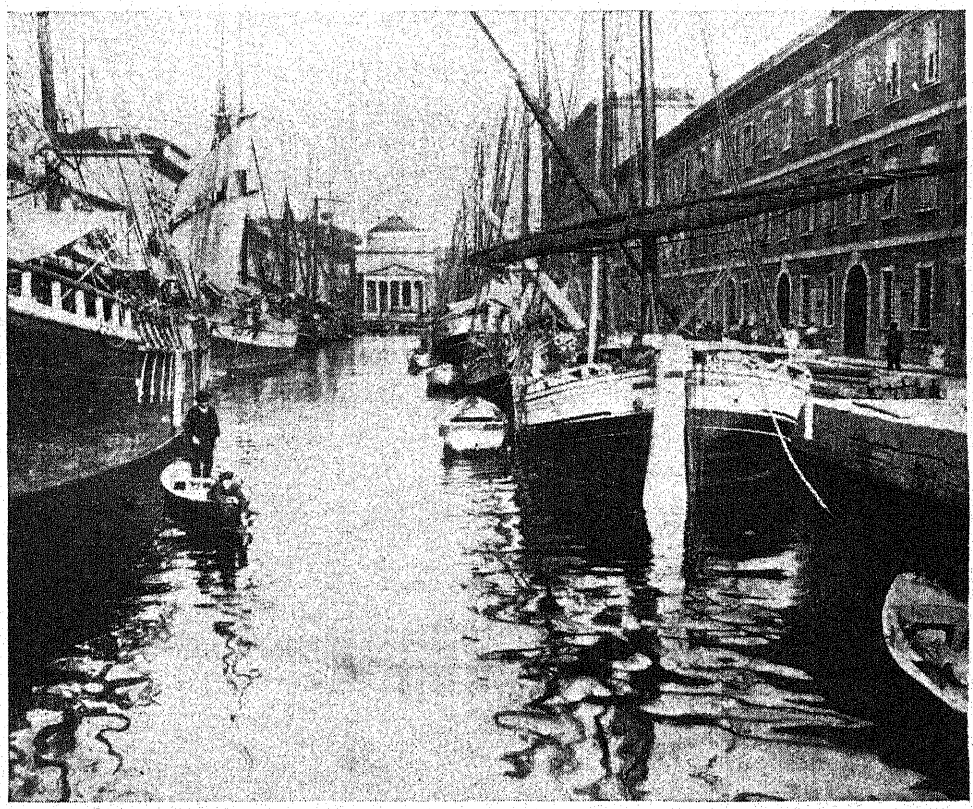
In eight years before the War Italy doubled the value of her buildings; in two years after the War her merchant marine was doubled, partly by the addition of ships handed over by Austria under the Peace Treaty. Ever since the beginning of the century she has been forging ahead. New buildings and new factories have sprung up everywhere. Her great ports, Trieste, Genoa, Venice, Naples, Palermo, and Bari, are all being enlarged. Venice is to develop a big trade with the eastern Mediterranean, and a great harbour is being built there with a separate port for the oil tankers which bring oil from all parts of the world, and with two square miles for industrial yards and factories, the workers being housed in a garden city. Palermo, where the little painted carts have jolly pictures on them, is become a great port for ocean-going ships plying between Italy and New York and Buenos Ayres.

At one time the chief industries of Italy were all in Lombardy and Piedmont. They made textiles, cottons, woollens, and silks, but there is now a great mechanical industry, especially in motor-cars and aeroplanes. The Fiat motor-car works in Turin are among the greatest in the world. In two natural products Italy has a practical monopoly. She has the principal alabaster mines in the world, and the marble quarries of Carrara are unique. The only European supply of sulphur is obtained from Sicily.

THE HIGH PLACE OF ITALY AMONG THE ARTS AND CRAFTS

In what may be called the artistic industries Italy has always held a high place. Art is native and traditional there. The Italian craftsman today is the heir of a long line of artist craftsmen in sculpture, in mosaic work, in pottery, in silver work, in glass, in iron, in embroidery, and in a score of other industries. And today, as in Japan, there are many men who work alone, or with one or two assistants, developing their own patterns

and their own artistic ideas, but working more or less on traditional lines. Most of us who have been to the London museums have seen the wonderful majolica, enamel, and glass and silver work of the Italian Renaissance, the work of such artists as Benvenuto Cellini. That work goes on. Some of the well-known centres are: for alabaster, Volterra and Florence; for pottery, Florence, Faenza, and Pesaro; for wrought iron, Siena, Florence, Turin, Venice, and many other places; for lace, Venice, Florence, Como, and Santa Margherita, as well as Sicily and Sardinia; for glass and beads, Venice; for statuary, the towns of Tuscany; for straw-plaiting, the Tuscan towns; for mosaic work, Venice and Florence.



SHIPPING ON A CANAL AT TRIESTE

The Italians are a Latin race, and their language comes directly from Latin, though a Latin so softened and modified that it has lost its complicated endings and its formal grammatical construction. It was regarded in the twelfth century as "Vulgar Latin," but Dante wrote his Divine Comedy in it, and Europe recognised that Italian was not merely a popular dialect, but one of the most flexible and musical languages in the world. From that day Italian literature was closely studied, and English writers, from Chaucer onwards, went to it for guidance and for stimulus. Chaucer took his tales from Boccaccio; Spenser took his from the Italian romance writers; Shakespeare went to the Italian treasure-house for many of his plots, and some of his contemporaries took the manner as well as the matter. Shelley sought refuge for his great spirit in Italy, and found his greatest inspiration there; there Keats died, and there a multitude of poets and writers, the Brownings among them, have found new homes from time to time.

There is no country outside their own towards which the minds of Englishmen and women turn with more passionate affection. English and French writers, artists and musicians, turned to Italy for their models and their inspiration in the fifteenth and sixteenth centuries; in the seventeenth English architects went to

Italy for their models, and Sir Christopher Wren built his London churches in the Italian style.

The Italian people are, it is true, descendants of the Romans, but the type varies very much. In Lombardy and the north the tall, fair Goths of the north settled, and have left an abiding impression on the race. The home provinces of the Roman Empire suffered a series of invasions which have left their mark. In Sicily and the south waves of invasion and occupation have left a mixed race.

THE VARIED TYPES OF PEOPLE IN THE PROVINCES OF ITALY

The people of the north and central Italy are industrious, educated, and orderly; the people of the south, misgoverned by foreign masters until little more than half a century ago, naturally more hot-blooded and turbulent, are more backward in education, more superstitious, less industrious, and still subject to the fierce hatreds which find their expression in what is called the Vendetta. The purest Roman type is to be found in Rome and Tuscany, dark eyes and dark hair, with the regular and beautiful features familiar in the masterpieces of Italian art. The Roman loved law and politics and the public discussion of them; his home life was based on the conception that the father is master of the house, and that it is his business to rule it with even but stern justice. This is the same today. The Roman gave law, roads, and fine cities to Europe, and today the Italians are great engineers.

HOW THE ITALIANS ARE BEING WELDED INTO ONE BIG FAMILY

There have always been some peoples in Italy who do not speak the Italian language—Albanians in Calabria and Sicily, French in the valley of Aosta, Greeks in the south, and Catalans in Sardinia. The newly-annexed territories have a population mainly Italian, but in the upper valley of the Adige towards the Brenner Pass, there are over 200,000 Germans, and in eastern Istria about half a million Croats and Slovenes. Italy's age-long division into different States, some of then under foreign rule, has helped to intensify the differences of race. These differences become less every year, as communications improve.

The Italians are naturally a religious people. Their Catholicism is rather different in spirit from that of any other nation. They have brought into it their local genius and perhaps something of earlier faith. In any case, it is more intimate, more familiar and personal, more of the soil, more traditional, than in other countries. Devotion centres round the Madonna and Child, the Madonna as we see her in Italian pictures, sometimes anxious and thoughtful, sometimes intellectual, sometimes gay, but always an Italian mother. Jesus is always an Italian boy, round and dimpled, and it is quite natural that his cradle should be in the Church at Christmas, and that everyone should go there to do him homage; that his picture should be in every house, and lighted on festal occasions with a candle. He is the guardian of the hearth and the centre of the home.

THE FLOURISHING TOWNS WHICH ARE BUILDING UP ITALY'S TRADE

Naples with her wonderful natural harbour and her population of 780,000 has still the greatest shipping trade of any port in Italy, but Palermo and Trieste are rapidly gaining on her. Milan and Turin are the greatest Italian manufacturing centres for textiles, metal-works, motor building, and many other branches of engineering; Milan is now the greater railway centre.

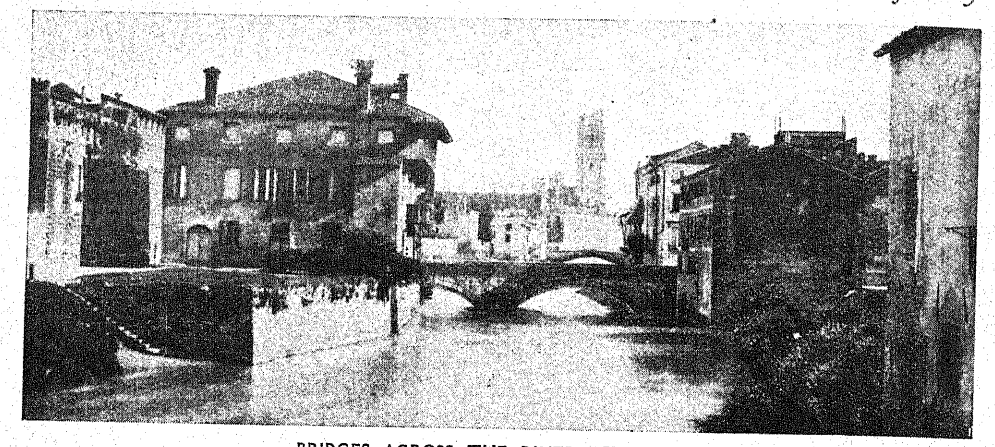
The busy manufacturing towns of Lombardy and Piedmont import and export through Genoa to the west and through Venice to the east. Catania, in Sicily, is the centre of the trade in sulphur, of which Italy had a practical monopoly until the United States stepped in. Trieste is the natural outlet for the trade of Austria; Messina, seated on the narrow strait between Italy and Sicily, has suffered terribly in the present century from earthquakes. Bari is a growing industrial port for European and Levantine trade; Leghorn is the port for Florence and the outlet for the industries of Tuscany; Padua, which claims to be older than Rome, was a famous medieval seat of learning and is now a great industrial town of Venetia. Ferrara, Brescia, and Verona are now all flourishing modern towns.

Modern Italy is indeed a new country; she is the scene today of an awakening of industry and commerce as marked as the awakening of art and learning in the fifteenth century; and she has the goodwill of all nations as she marches hopefully on into the future.

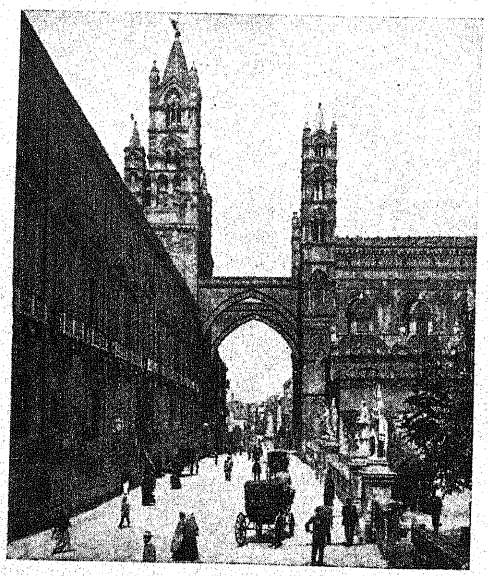
PICTURES OF ITALY TODAY

THE GRAND CANAL IN VENICE, AND THE CHURCH OF SANTA MARIA DELLA SALUTE

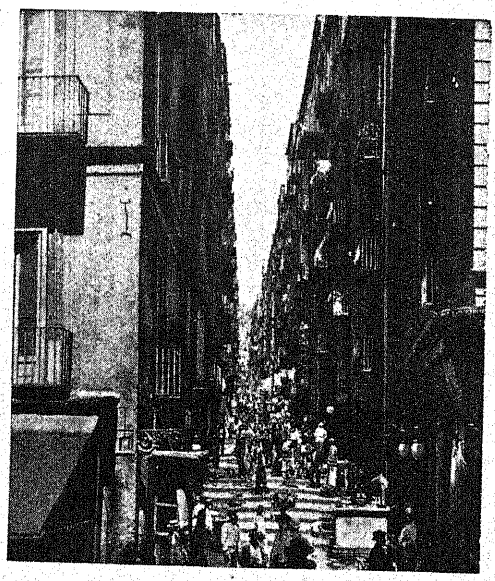
ROME FROM THE ROOF OF SAINT PETER'S



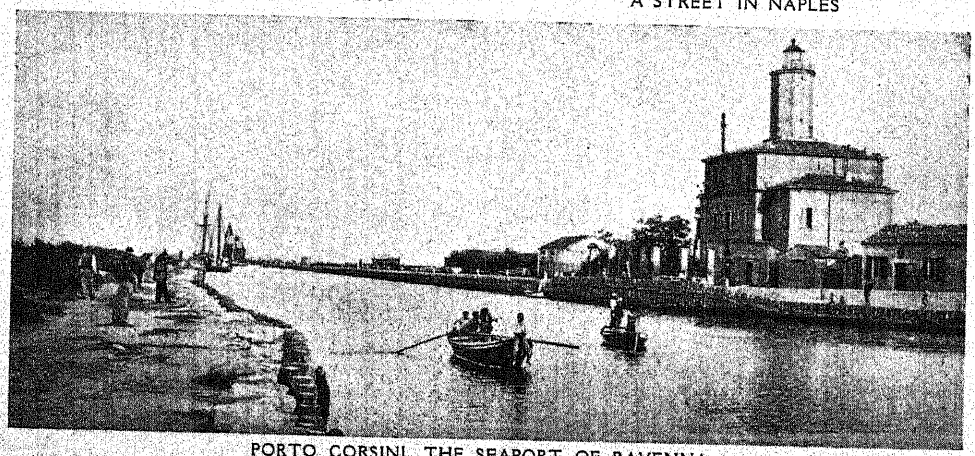
BRIDGES ACROSS THE RIVER AT PADUA



THE CAMPANILE AT PALERMO

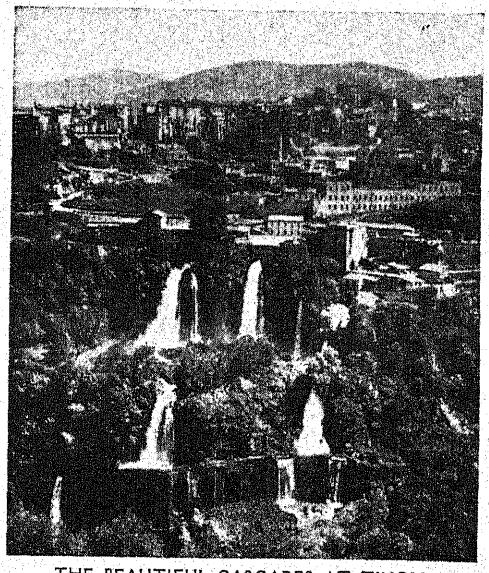


A STREET IN NAPLES

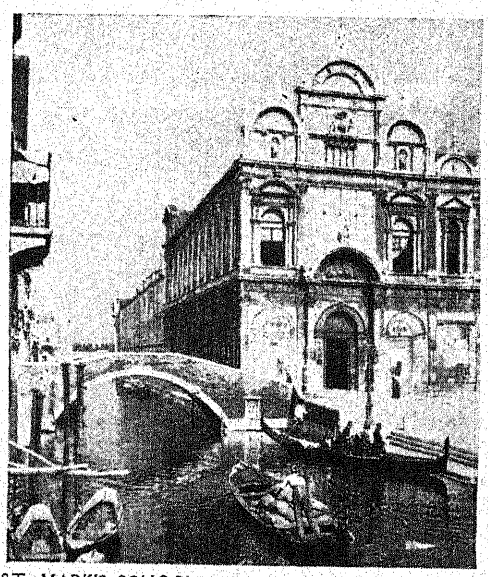


PORTO CORSINI, THE SEAPORT OF RAVENNA

VENICE AS IT IS

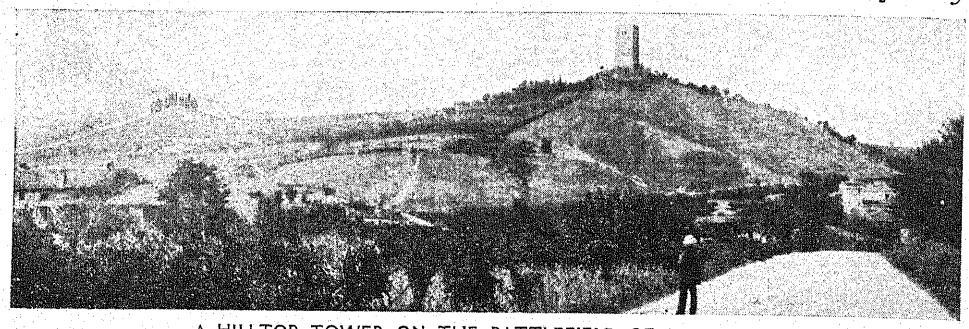


THE BEAUTIFUL CASCADES AT TIVOLI



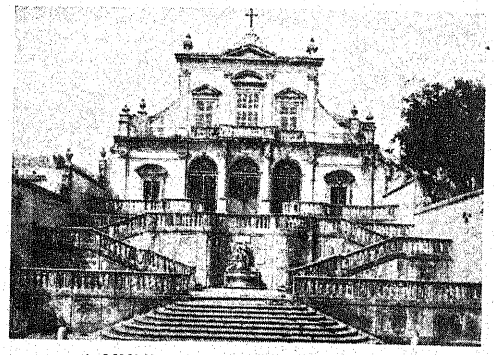
ST. MARK'S SCHOOL, VENICE, NOW A HOSPITAL

AN OLD BRIDGE ACROSS THE RIVER ADIGE AT VERONA

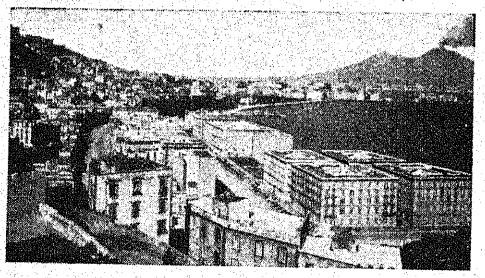


A HILLTOP TOWER ON THE BATTLEFIELD OF SOLFERINO

THE CATHEDRAL OF JOHN THE BAPTIST, TURIN



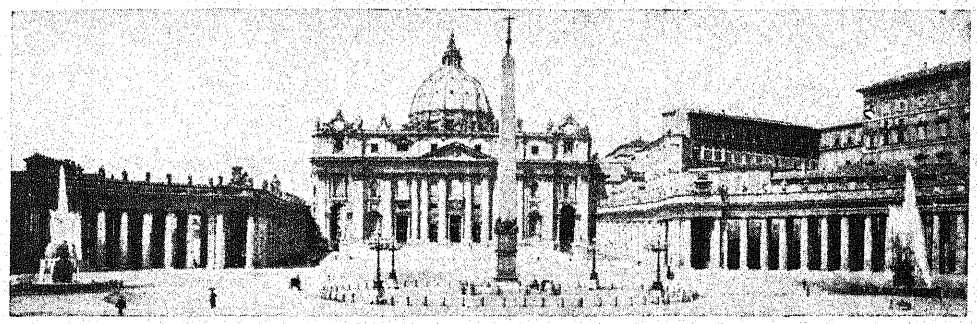
A MUNICIPAL OFFICE IN MESSINA



NAPLES, AT THE FOOT OF VESUVIUS

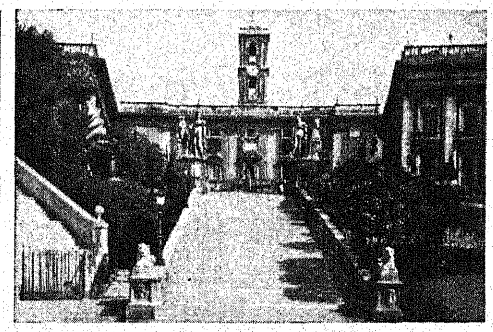
THE GREAT SEAPORT OF GENOA

THE WALLS AND ROOFS OF PISA

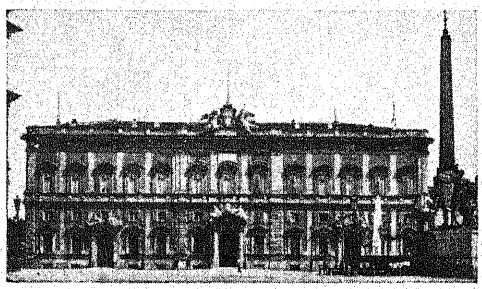


SAINT PETER'S, ROME, THE GREATEST CHURCH IN THE WORLD

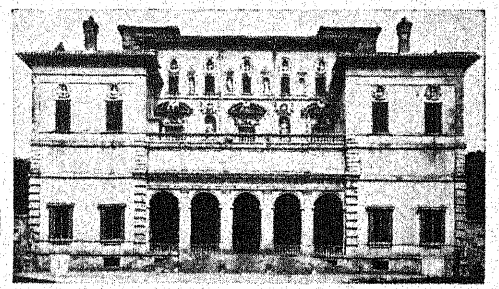
ROME'S FINEST FOUNTAIN



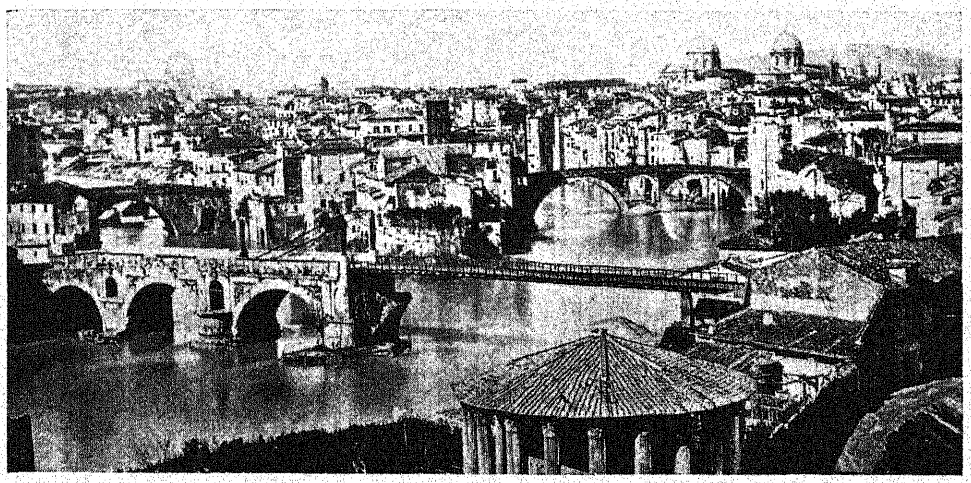
THE PALACE OF THE SENATE IN ROME



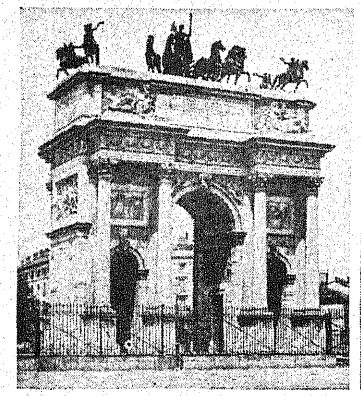
THE CONSULTA PALACE IN ROME



THE FAMOUS VILLA BORGHESE IN ROME



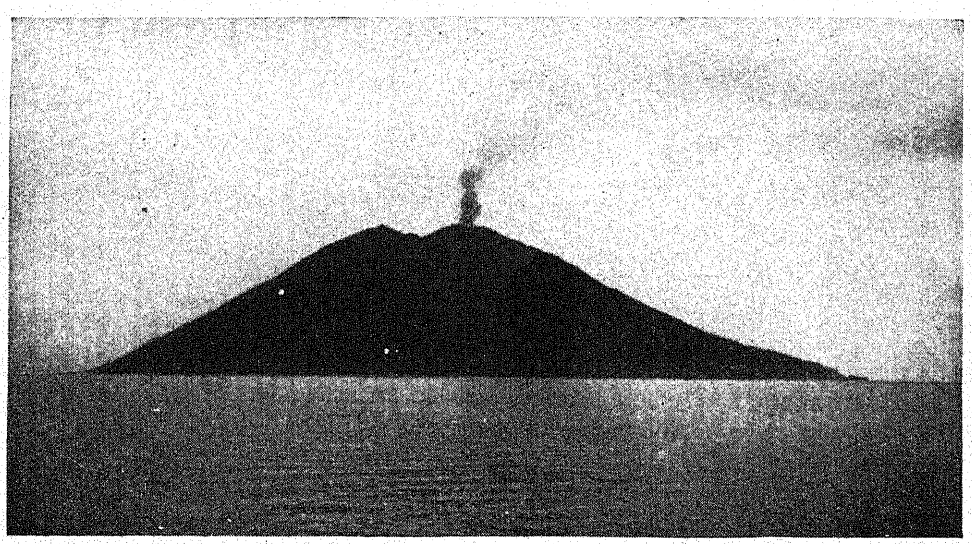
THE RIVER TIBER FLOWING THROUGH ROME



THE TRIUMPHAL ARCH AT MILAN

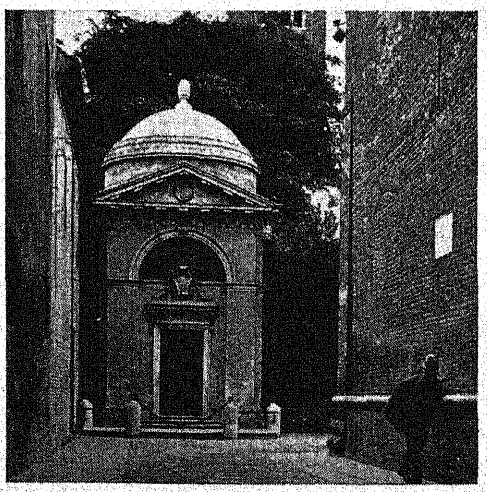
THE STATUE OF VICTOR EMMANUEL IN ROME

THE OLD ROMAN ARCH AT POLA



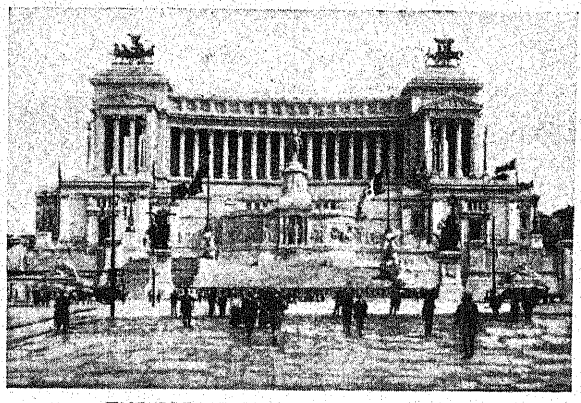
STROMBOLI, THE VOLCANIC ISLAND LYING OFF THE NORTH COAST OF SICILY

THE MARBLE QUARRIES AT CARRARA



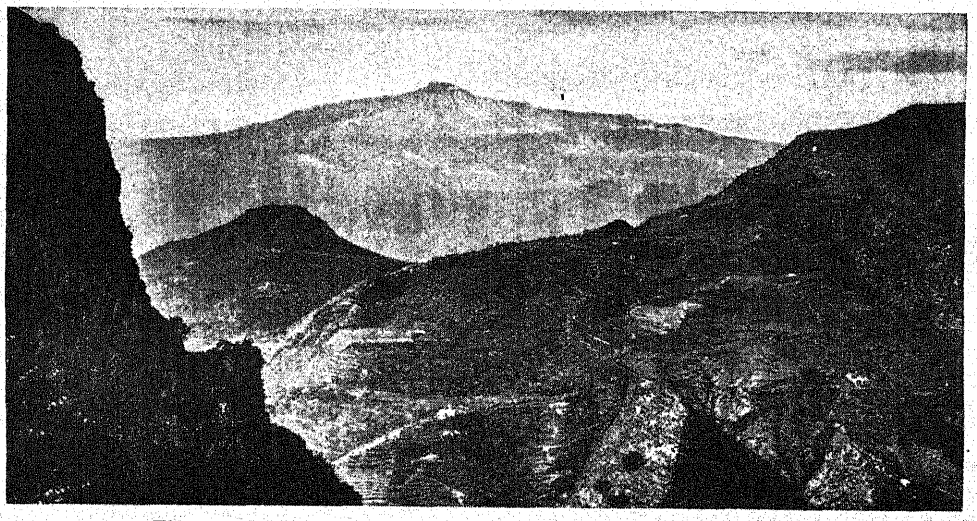
DANTE'S TOMB AT RAVENNA

COLUMBUS AT GENOA

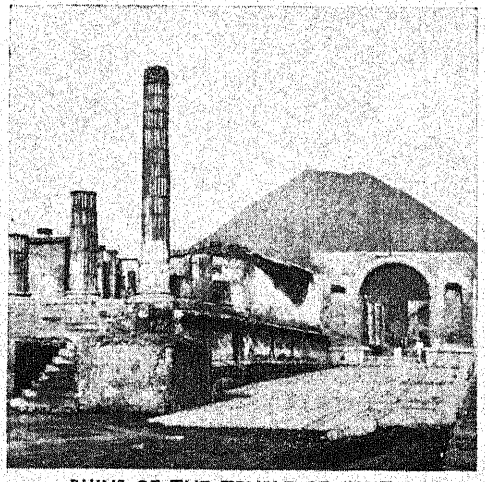


THE GREAT MONUMENT IN ROME TO VICTOR EMMANUEL

LEONARDO DA VINCI AT MILAN



THE RUGGED MOUNTAIN SCENERY ROUND TAORMINA IN SICILY

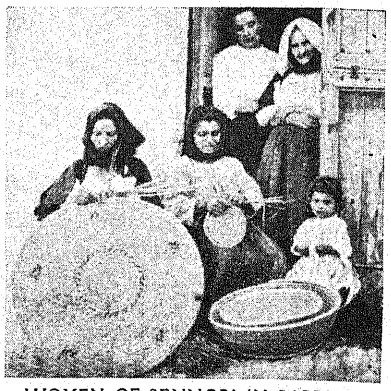


RUINS OF THE TEMPLE OF JUPITER AT POMPEII

A STREET IN OLD POMPEII, WITH VESUVIUS IN THE DISTANCE

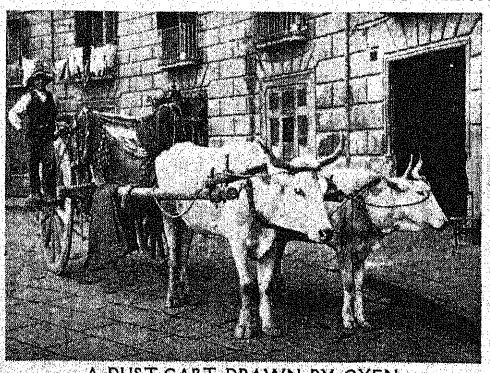
AN OLD MAN OF SICILY AND HIS LITTLE DAUGHTER

PEASANTS OF THE SICILIAN MOUNTAINS



WOMEN OF SENNORI IN SARDINIA MAKING BASKETS

OLD PEOPLE OF A HILL VILLAGE NEAR TAORMINA IN SICILY



A DUST-CART DRAWN BY OXEN

AN OX WAGON IN THE STREETS OF TRIESTE

The pictures on these pages are reproduced by courtesy of Messrs. Alinari. Brogi, Cutler. E. N. A., McLeish, and others

THE JACKDAW OF RHEIMS

Richard Harris Barham, who died in 1845 and lies within sound of the roar of traffic almost in the shadow of the office of The Children's Encyclopedia, was an English clergyman He wrote many comic tales in verse under the name of Thomas Ingoldsby, long famous as the Ingoldsby Legends, and unsurpassed for their fun. The poet is not without a serious purpose, however, and in this legend he exposes superstitious practices with an unsparing hand.

THE Jackdaw sat on the Cardinal's chair!
Bishop and abbot and prior were there;
Many a monk and many a friar,
Many a knight and many a squire,
With a great many more of lesser degree—
In sooth a goodly company;
And they served the Lord Primate on bended knee.
Never, I ween, was a prouder seen,
Read of in books, or dreamt of in dreams,
Than the Cardinal Lord Archbishop of Rheims!

IN and out through the motley rout
That little Jackdaw kept hopping about,
Here and there, like a dog in a fair,
Over comfits and cakes, and dishes and plates,
Cowl and cope, and rochet and pall,
Mitre and crosier—he hopped upon all!
With saucy air he perched on the chair
Where, in state, the great Lord Cardinal sat
In the great Lord Cardinal's great red hat;
And he peered in the face of his Lordship's Grace
With a satisfied look, as if he would say,
"We two are the greatest folks here today!"

THE feast was over, the board was cleared,
The flawns and the custards had all disappeared,
And six little singing-boys—dear little souls!
In nice clean faces and nice white stoles,
Came, in order due, two by two,
Marching that grand refectory through!
A nice little boy held a golden ewer,
Embossed and filled with water as pure
As any that flows between Rheims and Namur,
Which a nice little boy stood ready to catch
In a fine golden hand-basin made to match.
Two nice little boys, rather more grown,
Carried lavender-water and eau-de-Cologne;
And a nice little boy had a nice cake of soap,
Worthy of washing the hands of the Pope.
One little boy more a napkin bore
Of the best white diaper, fringed with pink,
And a Cardinal's hat marked in permanent ink.

THE great Lord Cardinal turns at the sight
Of these nice little boys dressed all in white:
From his finger he draws his costly turquoise,
And, not thinking at all about little Jackdaws,
Deposits it straight by the side of his plate,
While the nice little boys on his Eminence wait;
Till, when nobody's dreaming of any such thing,
That little Jackdaw hops off with the ring!
There's a cry and a shout, and no end of a rout,

And nobody seems to know what they're about,
But the monks have their pockets all turned inside out ;
The friars are kneeling, and hunting, and feeling
The carpet, the floors, and the walls, and the ceiling ;
The Cardinal drew off each plum-coloured shoe,
And left his red stockings exposed to the view ;
He peeps, and he feels in the toes and the heels ;
They turn up the dishes, they turn up the plates,
They take up the poker and poke out the grates,
They turn up the rugs, they examine the mugs—
But no !—no such thing—they can't find the ring !
And the Abbot declared that, " when nobody twigged it,
Some rascal or other had popped in and prigged it ! "

The Cardinal rose with a dignified look,
He called for his candle, his bell, and his book !
In holy anger and pious grief
He solemnly cursed that rascally thief !
He cursed him at board, he cursed him in bed,
From the sole of his foot to the crown of his head ;
He cursed him in sleeping, that every night
He should dream of evil and wake in a fright ;
He cursed him in eating, he cursed him in drinking,
He cursed him in coughing, in sneezing, in winking ;
He cursed him in sitting, in standing, in lying ;
He cursed him in walking, in riding, in flying,
He cursed him in living, he cursed him in dying !
Never was heard such a terrible curse !
But what gave rise to no little surprise,
Nobody seemed one penny the worse !

The day was gone, the night came on,
The monks and the friars they searched till dawn,
When the sacristan saw, on crumpled claw,
Come limping a poor little lame Jackdaw ;
No longer gay, as on yesterday ;
His feathers all seemed to be turned the wrong way.
His pinions drooped, he could hardly stand,
His head was as bald as the palm of your hand ;
His eyes so dim, so wasted each limb,
That, heedless of grammar, they all cried *" That's him !*
That's the scamp that has done this scandalous thing !
That's the thief that has got my Lord Cardinal's ring ! "

That poor little Jackdaw, when the monks he saw,
Feebly gave vent to the ghost of a caw ;
And turned his bald head, as much as to say,
" Pray be so good as to walk this way ! "
Slower and slower he limped on before,
Till they came to the back of the belfry door,
When the first thing they saw,
Midst the sticks and the straw,
Was the ring in the nest of the little Jackdaw !

Then the great Lord Cardinal called for his book,
And off that terrible curse he took ;
The mute expression served in lieu of confession ;
And, being thus coupled with full restitution,
The Jackdaw got plenary absolution !
When those words were heard that poor little bird
Was so changed in a moment 'twas really absurd.
He grew sleek and fat ; in addition to that
A fresh crop of feathers came thick as a mat !
His tail waggled more even than before ;
But no longer it wagged with an impudent air,
No longer he perched on the Cardinal's chair.
He hopped now about with a gait devout ;
At Matins, at Vespers, he never was out ;
And, so far from any more pilfering deeds,
He always seemed telling the Confessor's beads.
If anyone lied, or if anyone swore,
Or slumbered in prayer-time and happened to snore,
Then good Jackdaw would give a great caw,
As much as to say, "Don't do so any more!"

While many remarked, as his manners
they saw,
That they never had known such a pious
Jackdaw!

He lived long the pride of that countryside,
And at last in the odour of sanctity died;
When, as words were too faint his merits
to paint,
The Conclave determined to make him a
Saint!
It's the custom at Rome new names to
bestow
So they canonised him by the name of Jim
Crow!

THE BEST SCHOOL OF ALL

There is, of course, but one best school, and that is the one at which each of us has been a scholar. Our own old school, no matter what others may think of theirs, is to us "the best school of all." Sir Henry Newbolt, one of our finest poets, in these ringing and vigorous verses celebrates with the true touch of boyish patriotism the memory of all our schooldays. One would be sorry for the "old boy" who could not sing this fine song, and feel it to be true, for he would have missed one of the real pleasures of life. It is here reprinted by permission of Sir Henry Newbolt.

IT'S good to see the school we knew,
The land of youth and dream,
To greet again the rule we knew
Before we took the stream:
Though long we've missed the sight of her,
Our hearts may not forget;
We've lost the old delight of her,
We keep her honour yet.

We'll honour yet the school we knew,
The best school of all:
We'll honour yet the rule we knew,
Till the last bell call.
For, working days or holidays,
And glad or melancholy days,
They were great days and jolly days
At the best school of all

The stars and sounding vanities
That half the crowd bewitch,
What are they but inanities
To him that treads the pitch?
And where's the wealth, I'm wondering,
Could buy the cheers that roll
When the last charge goes thundering
Beneath the twilight goal?

The men that tanned the hide of us,
Our daily foes and friends,
They shall not lose their pride of us
Howe'er the journey ends.
Their voice to us who sing of it
No more its message bears,
But the round world shall ring of it
And all we are be theirs

To speak of Fame a venture is,
There's little here can bide,
But we may face the centuries,
And dare the deepening tide:
For though the dust that's part of us
To dust again be gone,
Yet here shall beat the heart of us:
The school we handed on!

We'll honour yet the school we knew,
The best school of all:
We'll honour yet the rule we knew,
Till the last bell call.
For, working days or holidays,
And glad or melancholy days,
They were great days and jolly days
At the best school of all.

MY SHADOW

We often have fancies that come to our minds at odd times, but only the poet lay hold of these fancies and keep them for the delight of all who may read. My Shadow is an example of this. We must all in our young days have had some such thoughts, but only Robert Louis Stevenson, who wrote this pretty poem, was clever enough to turn these thoughts into words that can live.

I HAVE a little shadow that goes in and
out with me,
And what can be the use of him is more
than I can see.
He is very, very like me from the heels up
to the head:
And I see him jump before me when I
jump into my bed.

The funniest thing about him is the way
he likes to grow—
Not at all like proper children, which is
always very slow;
For he sometimes shoots up taller, like an
india-rubber ball
And he sometimes gets so little that there's
none of him at all.

He hasn't got a notion of how children
ought to play.
And can only make a fool of me in every
sort of way.
He stays so close beside me he's a coward
you can see;
I'd think shame to stick to nursie as that
shadow sticks to me.

One morning very early, before the sun
was up,
I rose and found the shining dew on every
buttercup
But my lazy little shadow, like an arrant
sleepy-head,
Had stayed at home behind me, and was
fast asleep in bed.

THE INCHCAPE ROCK

This fine poem by Robert Southey describes with great dramatic effect an old story of the east coast of Scotland which may possibly have been true. The Inchcape Rock, from which Ralph the Rover is supposed to have cut the bell, stands twelve miles out from the coast of Scotland. The poem is, of course, intended to show that an evil deed will, in all probability, recoil on the head of the offender.

No stir in the air, no stir in the sea,
The ship was as still as she could be ;
Her sails from heaven received no motion,
Her keel was steady in the ocean.

Without either sign or sound of their shock
The waves flowed over the Inchcape Rock ;
So little they rose, so little they fell,
They did not move the Inchcape Bell.

The good old Abbot of Aberbrothok
Had placed that bell on the Inchcape Rock ;
On a buoy in the storm it floated and swung
And over the waves its warning rung.

When the rock was hid by the surges' swell
The mariners heard the warning bell ;
And then they knew the perilous rock,
And blest the Abbot of Aberbrothok.

The sun in heaven was shining gay,
All things were joyful on that day ;
The sea birds screamed as they wheeled round,
And there was joyance in their sound.

The buoy of the Inchcape Rock was seen,
A darker speck on the ocean green ;
Sir Ralph the Rover walked his deck,
And he fixed his eye on the darker speck.

He felt the cheering power of spring,
It made him whistle, it made him sing ;
His heart was mirthful to excess,
But the Rover's mirth was wickedness.

His eye was on the Inchcape float ;
Quoth he, " My men, put out the boat,
And row me to the Inchcape Rock,
And I'll plague the priest of Aberbrothok."

The boat is lowered, the boatmen row,
And to the Inchcape Rock they go ;
Sir Ralph bent over from the boat,
And he cut the bell from the Inchcape float.

Down sank the bell, with a gurgling sound,
The bubbles rose and burst around ;
Quoth Sir Ralph, " The next who comes to the rock
Won't bless the Abbot of Aberbrothok."

Sir Ralph the Rover sailed away,
He scoured the seas for many a day ;
And now, grown rich with plundered store,
He steers his course for Scotland's shore.

So thick a haze o'erspreads the sky
They cannot see the sun on high ;
The wind hath blown a gale all day,
At evening it hath died away.

On the deck the Rover takes his stand,
So dark it is they see no land.
Quoth Sir Ralph, " It will be lighter soon,
For there is the dawn of the rising moon."

" Canst hear," said one, " the breakers roar ?
For methinks we should be near the shore ;
Now where we are I cannot tell,
But I wish I could hear the Inchcape Bell."

They hear no sound, the swell is strong ;
Though the wind hath fallen, they drift along,
Till the vessel strikes with a shivering shock,
Cried they, " It is the Inchcape Rock ! "

Sir Ralph the Rover tore his hair,
He curst himself in his despair ;
The waves rush in on every side,
The ship is sinking beneath the tide.

But even in his dying fear
One dreadful sound could the Rover hear,
A sound as if with the Inchcape Bell
The fiends below were ringing his knell.

THE HAPPIEST AGE

The full title of this little poem by the Earl of Surrey, a great scholar, poet, and unfortunate nobleman in the time of Henry VIII, is " The Age of Children Happiest, if they had Wit to Understand it." It is wise and just in its philosophy, and shows that the poet wrote out of the sadness of his heart

Laid in my quiet bed, in study as I were,
I saw within my troubled head a heap of thoughts appear ;
And every thought did show so lively in mine eyes
That now I sighed, and then I smiled, as cause of thoughts did rise.
I saw the little boy, in thought how oft that he
Did wish of God, to 'scape the rod, a tall young man to be.
The young man eke that feels his bones with pains opprest,
How he would be a rich old man, to live and lie at rest !
The rich old man that sees his end draw on so sore,
How he would be a boy again to live so much the more !
Whereat full oft I smiled to see how all these three,
From boy to man, from man to boy, would chop and change degree.

THE MOTHER'S DREAM

Here is an example of the tenderness of the verse of William Barnes, the Dorsetshire poet, showing that his pathos does not depend on his use of the local dialect, but exists in the thought itself and the simplicity of its expression.

I'D a dream tonight
As I fell asleep—
Oh! the touching sight
Makes me still to weep—
Of my little lad,
Gone to leave me sad,
Aye, the child I had,
But was not to keep.

As in heaven high
I my child did seek,
There, in train, came by
Children fair and meek,
Each in lily white,
With a lamp alight;
Each was clear to sight,
But they did not speak.

Then, a little sad,
Came my child in turn,
But the lamp he had,
Oh! it did not burn;
He, to clear my doubt,
Said, half turned about,
"Your tears put it out;
Mother, never mourn."

TAPESTRY TREES

An interesting side of William Morris's poetic interests may be illustrated by his couplets on the romantic uses of trees: the oak for shipbuilding, the fir for masts, and so on. The poem is taken by permission of the poet's Trustees from Poems by the Way, published by Messrs. Longmans.

OAK

I am the roof tree and the keel;
I bridge the seas for woe and weal.

FIR

High o'er the lordly oak I stand,
And drive him on from land to land.

ASH

I heft my brother's iron bane;
I shaft the spear, and build the wain.

YEW

Dark down the windy dale I grow,
The father of the fateful bow.

POPLAR

The war-shaft and the milking-bowl
I make, and keep the hay-wain whole.

OLIVE

The king I bless; the lamps I trim;
In my warm wave do fishes swim.

APPLE TREE

I bowed my head to Adam's will;
The cups of toiling men I fill.

VINE

I draw the blood from out the earth;
I store the sun for winter mirth.

ORANGE TREE

Amidst the greenness of my night
My odorous lamps hang round and bright.

FIG TREE

I, who am little among trees,
In honey-making mate the bees.

MULBERRY TREE

Love's lack hath dyed my berries red;
For love's attire my leaves are shed.

PEAR TREE

High o'er the mead-flowers' hidden feet
I bear aloft my burden sweet.

BAY

Look on my leafy boughs, the crown
Of living song and dead renown!

MY SHIPS

This poem, perhaps the very best of hundreds of poems by Ella Wheeler Wilcox, is one which young and old alike will much appreciate. Mrs. Wilcox died in 1919, and some of her last writings were done for the Editor of this book, and published in the Children's Newspaper.

IF all the ships I have at sea
Should come a-sailing home to me,
Ah, well! the harbour could not hold
So many sails as there would be
If all my ships came in from sea.

If half my ships came home from sea
And brought their precious freight to me
Ah, well! I should have wealth as great
As any king who sits in state;
So rich the treasures that would be
In half my ships now out at sea.

If just one ship I have at sea
Should come a-sailing home to me,
Ah, well! the storm-clouds then might frown;
For if the others all went down
Still rich and proud and glad I'd be
If that one ship came back to me.

If that one ship went down at sea
And all the others came to me,
Weighed down with gems and wealth untold,
With glory, honours, riches, gold,
The poorest soul on earth I'd be
If that one ship came not to me.

O skies, be calm! O winds, blow free,
Blow all my ships safe home to me!
But if thou sendest some a-wrack,
To never more come sailing back,
Send any—all that skim the sea,
But bring my love-ship home to me.

THE INCHCAPE ROCK

This fine poem by Robert Southey describes with great dramatic effect an old story of the east coast of Scotland which may possibly have been true. The Inchcape Rock, from which Ralph the Rover is supposed to have cut the bell, stands twelve miles out from the coast of Scotland. The poem is, of course, intended to show that an evil deed will, in all probability, recoil on the head of the offender.

No stir in the air, no stir in the sea,
The ship was as still as she could be ;
Her sails from heaven received no motion,
Her keel was steady in the ocean.

Without either sign or sound of their shock
The waves flowed over the Inchcape Rock ;
So little they rose, so little they fell,
They did not move the Inchcape Bell.

The good old Abbot of Aberbrothok
Had placed that bell on the Inchcape Rock ;
On a buoy in the storm it floated and swung
And over the waves its warning rung.

When the rock was hid by the surges' swell
The mariners heard the warning bell ;
And then they knew the perilous rock,
And blest the Abbot of Aberbrothok.

The sun in heaven was shining gay,
All things were joyful on that day ;
The sea birds screamed as they wheeled round,
And there was joyance in their sound.

The buoy of the Inchcape Rock was seen,
A darker speck on the ocean green ;
Sir Ralph the Rover walked his deck,
And he fixed his eye on the darker speck.

He felt the cheering power of spring,
It made him whistle, it made him sing ;
His heart was mirthful to excess,
But the Rover's mirth was wickedness.

His eye was on the Inchcape float ;
Quoth he, " My men, put out the boat,
And row me to the Inchcape Rock,
And I'll plague the priest of Aberbrothok."

The boat is lowered, the boatmen row,
And to the Inchcape Rock they go ;
Sir Ralph bent over from the boat,
And he cut the bell from the Inchcape float.

Down sank the bell, with a gurgling sound,
The bubbles rose and burst around ;
Quoth Sir Ralph, " The next who comes to the rock
Won't bless the Abbot of Aberbrothok."

Sir Ralph the Rover sailed away,
He scoured the seas for many a day ;
And now, grown rich with plundered store,
He steers his course for Scotland's shore.

So thick a haze o'erspreads the sky
They cannot see the sun on high ;
The wind hath blown a gale all day,
At evening it hath died away.

On the deck the Rover takes his stand,
So dark it is they see no land.
Quoth Sir Ralph, " It will be lighter soon,
For there is the dawn of the rising moon."

" Canst hear," said one, " the breakers roar ?
For methinks we should be near the shore ;
Now where we are I cannot tell,
But I wish I could hear the Inchcape Bell."

They hear no sound, the swell is strong ;
Though the wind hath fallen, they drift along,
Till the vessel strikes with a shivering shock,
Cried they, " It is the Inchcape Rock ! "

Sir Ralph the Rover tore his hair,
He curst himself in his despair ;
The waves rush in on every side,
The ship is sinking beneath the tide.

But even in his dying fear
One dreadful sound could the Rover hear,
A sound as if with the Inchcape Bell
The fiends below were ringing his knell.

THE HAPPIEST AGE

The full title of this little poem by the Earl of Surrey, a great scholar, poet, and unfortunate nobleman in the time of Henry VIII, is " The Age of Children Happiest, if they had Wit to Understand it." It is wise and just in its philosophy, and shows that the poet wrote out of the sadness of his heart

Laid in my quiet bed, in study as I were,
I saw within my troubled head a heap of thoughts appear ;
And every thought did show so lively in mine eyes
That now I sighed, and then I smiled, as cause of thoughts did rise.
I saw the little boy, in thought how oft that he
Did wish of God, to 'scape the rod, a tall young man to be.
The young man eke that feels his bones with pains opprest,
How he would be a rich old man, to live and lie at rest !
The rich old man that sees his end draw on so sore,
How he would be a boy again to live so much the more !
Whereat full oft I smiled to see how all these three,
From boy to man, from man to boy, would chop and change degree.

THE MOTHER'S DREAM

Here is an example of the tenderness of the verse of William Barnes, the Dorsetshire poet, showing that his pathos does not depend on his use of the local dialect, but exists in the thought itself and the simplicity of its expression.

I'D a dream tonight
As I fell asleep—
Oh! the touching sight
Makes me still to weep—
Of my little lad,
Gone to leave me sad,
Aye, the child I had,
But was not to keep.

As in heaven high
I my child did seek,
There, in train, came by
Children fair and meek,
Each in lily white,
With a lamp alight;
Each was clear to sight,
But they did not speak.

Then, a little sad,
Came my child in turn,
But the lamp he had,
Oh! it did not burn;
He, to clear my doubt,
Said, half turned about,
"Your tears put it out;
Mother, never mourn."

TAPESTRY TREES

An interesting side of William Morris's poetic interests may be illustrated by his couplets on the romantic uses of trees: the oak for shipbuilding, the fir for masts, and so on. The poem is taken by permission of the poet's Trustees from Poems by the Way, published by Messrs. Longmans.

OAK

I am the roof tree and the keel;
I bridge the seas for woe and weal.

FIR

High o'er the lordly oak I stand,
And drive him on from land to land.

ASH

I heft my brother's iron bane;
I shaft the spear, and build the wain.

YEW

Dark down the windy dale I grow,
The father of the fateful bow.

POPLAR

The war-shaft and the milking-bowl
I make, and keep the hay-wain whole.

OLIVE

The king I bless; the lamps I trim;
In my warm wave do fishes swim.

APPLE TREE

I bowed my head to Adam's will;
The cups of toiling men I fill.

VINE

I draw the blood from out the earth;
I store the sun for winter mirth.

ORANGE TREE

Amidst the greenness of my night
My odorous lamps hang round and bright.

FIG TREE

I, who am little among trees,
In honey-making mate the bees.

MULBERRY TREE

Love's lack hath dyed my berries red;
For love's attire my leaves are shed.

PEAR TREE

High o'er the mead-flowers' hidden feet
I bear aloft my burden sweet.

BAY

Look on my leafy boughs, the crown
Of living song and dead renown!

MY SHIPS

This poem, perhaps the very best of hundreds of poems by Ella Wheeler Wilcox, is one which young and old alike will much appreciate. Mrs. Wilcox died in 1919, and some of her last writings were done for the Editor of this book, and published in the Children's Newspaper.

IF all the ships I have at sea
Should come a-sailing home to me,
Ah, well! the harbour could not hold
So many sails as there would be
If all my ships came in from sea.

If half my ships came home from sea
And brought their precious freight to me
Ah, well! I should have wealth as great
As any king who sits in state;
So rich the treasures that would be
In half my ships now out at sea.

If just one ship I have at sea
Should come a-sailing home to me,
Ah, well! the storm-clouds then might frown;
For if the others all went down
Still rich and proud and glad I'd be
If that one ship came back to me.

If that one ship went down at sea
And all the others came to me,
Weighed down with gems and wealth untold,
With glory, honours, riches, gold,
The poorest soul on earth I'd be
If that one ship came not to me.

O skies, be calm! O winds, blow free,
Blow all my ships safe home to me!
But if thou sendest some a-wrack,
To never more come sailing back,
Send any—all that skim the sea,
But bring my love-ship home to me.

THE LAND O' THE LEAL

Lady Carolina Nairne, a titled Scottish lady, wrote this pathetic address of a dying husband to his wife. It is known all over the world. Lady Nairne was very retiring and modest, and never claimed her true place as a writer, but she wrote some of Scotland's favourite songs, as, for example, Will Ye No Come Back Again? Leal means loyal. Fain sometimes means fond and sometimes glad.

I'M wearin' awa', Jean,
Like snaw-wreaths in thaw, Jean,
I'm wearin' awa'
To the land o' the leal.
There's nae sorrow there, Jean,
There's neither cauld nor care, Jean,
The day is aye fair
In the land o' the leal.

Our bonnie bairn's there, Jean,
She was baith gude and fair, Jean,
And oh! we grudged her sair
To the land o' the leal.
But sorrow's sel' wears past, Jean,
And joy's a-comin' fast, Jean,
The joy that's aye to last
In the land o' the leal.

Sae dear that joy was bought, Jean,
Sae free the battle fought, Jean,
That sinfu' man e'er brought
To the land o' the leal.
Oh! dry your glistening e'e, Jean,
My soul langs to be free, Jean,
And angels beckon me
To the land o' the leal.

Oh! haud ye leal and true, Jean,
Your day it's wearin' thro', Jean,
And I'll welcome you
To the land o' the leal.
Now fare ye weel, my ain Jean,
This warld's cares are vain, Jean,
We'll meet, and we'll be fain,
In the land o' the leal.

A DOUBTING HEART

Adelaide Anne Procter sings in these inspiring verses a sure song of hope. It is more than that, indeed, for it is not so much hope as observation, common sense, wisdom, that teach us to know that "behind the clouds is the sun still shining." If we would but remember the commonest facts of life—how the dawn follows darkness, and that all days cannot be dull—we should keep a better level of cheerfulness, hope would be stronger in us, and despair unknown.

WHERE are the swallows fled?
Frozen and dead,
Perchance, upon some bleak and stormy shore.
O doubting heart!
Far over purple seas
They wait, in sunny ease,
The balmy southern breeze
To bring them to their northern homes once more.

Why must the flowers die?
Prisoned they lie
In the cold tomb, heedless of tears or rain.
O doubting heart!
They only sleep below
The soft white ermine snow,
While winter winds shall blow,
To breathe and smile upon you soon again.

The sun has hid its rays
These many days;
Will dreary hours never leave the earth?
O doubting heart!
The stormy clouds on high
Veil the same sunny sky
That soon—for spring is nigh—
Shall wake the summer into golden mirth.

Fair hope is dead, and light
Is quenched in night.
What sound can break the silence of despair?
O doubting heart!
Thy sky is overcast,
Yet stars shall rise at last,
Brighter for darkness past,
And angels' silver voices stir the air.

SLAVE AND EMPEROR

When the Flag of the Free flew over Nazareth after the Great War Mr. Alfred Noyes, one of the most famous of our young English poets, put his solemn thoughts in stately verse. He calls his poem Slave and Emperor because he remembers that the war-makers of Germany called Christianity a creed for slaves, and his poem begins by telling how the Emperor "mocked at Nazareth in his almighty hour." Finely contrasted with the Emperor's pride is the humility of Christ, whom Mr. Noyes pictures as the slave. The three following verses are taken from the poem.

I HEAR a shout that moves the earth, a cry that wakes the dead.
Will no one tell me whence they come?
For all my messengers are dumb.
What power is this that comes to birth, and breaks my power? he said.

Then all around his foundering guns, though dawn was now not far,
The darkness filled with a living fear,
That whispered at the Emperor's ear,
"The armies of the dead draw near, beneath an Eastern star."

The trumpet blows in Nazareth, the slave is risen again,
Across the bitter wastes of death
The horsemen ride from Nazareth,
And the power we mocked as wasted breath returns in power to reign,
Rides on in white through Nazareth to save His world again.

AMENDS TO NATURE

We never really understand the big world that we call Nature till we feel ourselves of it. That is what Arthur Symons, one of our modern poets, says in these verses.

I HAVE loved colours, and not flowers ;
Their motion, not the swallow's wings,
And wasted more than half my hours
Without the comradeship of things.

How is it now that I can see,
With love and wonder and delight,
The children of the hedge and tree,
The little lords of day and night ?

How is it that I see the roads,
No longer with usurping eyes,
A twilight meeting-place for toads,
A mid-day mart for butterflies ?

I feel in every midge that hums
Life, fugitive and infinite,
And suddenly the world becomes
A part of me and I of it.

YOUR MISSION

These anonymous verses were popular half a century ago as a school song, and a very good song, too, for they carry lessons of great importance through a series of pictures.

IF you cannot on the ocean
Sail among the swiftest fleet,
Rocking on the highest billows,
Laughing at the storms you meet,
You can stand among the sailors
Anchored yet within the bay ;
You can lend a hand to help them
When they launch their boats away.

If you are too weak to journey
Up the mountain steep and high
You can stand within the valley
While the multitudes go by.
You can chant in happy measures
As they slowly pass along ;
Though they may forget the singer,
They will not forget the song.

If you have not gold and silver
Ever ready at command,
If you cannot toward the needy
Reach an ever-open hand,
You can visit the afflicted,
O'er the erring you can weep ;
You can be a true disciple
Sitting at the Saviour's feet.

If you cannot in the conflict
Prove yourself a soldier true,
If where fire and smoke are thickest
There's no work for you to do,
When the battlefield is silent
You can go with careful tread,
You can bear away the wounded,
You can cover up the dead.

If you cannot in the harvest
Garner up the richest sheaves,
Many a grain both ripe and golden
Which the careless reaper leaves.
You can glean among the briars
Growing rank against the wall,
For it may be that their shadow
Hides the heaviest wheat of all.

Do not, then, stand idly waiting
For some greater work to do ;
Fortune is a lazy goddess,
She will never come to you.
Go and toil in any vineyard,
Do not fail to do or dare ;
If you want a field of labour
You can find it anywhere.

THE BLIND HIGHLAND BOY

In the following poem we see Wordsworth in what we may call his " ambling " style. By this we mean that we cannot rank the verses among his best. Some of his poems we have read in our book are so good that nobody but Wordsworth could have written them, but in pieces like this he does not achieve distinction beyond many another poet. Yet these verses are not unworthy of being included here, as they are both true in feeling and simple in expression.

HE ne'er had seen one earthly sight,
The sun, the day, the stars, the night ;
Or tree, or butterfly, or flower,
Or fish in stream, or bird in bower,
Or woman, man, or child.

And yet he neither drooped nor pined,
Nor had a melancholy mind ;
For God took pity on the boy,
And was his friend ; and gave him joy
Of which we nothing know.

His mother, too, no doubt, above
Her other children him did love !
For was she here, or was she there,
She thought of him with constant care
And more than mother's love.

And proud was she of heart when, clad
In crimson stockings, tartan plaid,
And bonnet with a feather gay,
To kirk he on the Sabbath day
Went hand in hand with her.

A dog, too, had he ; not for need,
But one to play with and to feed ;
Which would have led him if bereft
Of company or friends and left
Without a better guide.

And then the bagpipes he could blow ;
And thus from house to house would go,
And all were pleased to hear and see ;
For none made sweeter melody
Than did the poor blind boy.

STANZAS ON FREEDOM

No poem ever written has been more popular in America than this, and none has more deeply moved the hearts of men everywhere, for it is like a purifying fire clearing men's souls of selfishness. It was written by Lowell at the time when timid Americans were afraid to take a firm stand against slavery lest war should be provoked with the slave-owning States and the country be split in twain Such timidity was called political wisdom, and was popular But Lowell and others swept it away, and roused and shamed their neighbours into a mighty love of freedom

MEN! whose boast it is that ye
Come of fathers brave and free,
If there breathe on earth a slave
Are ye truly free and brave?
If ye do not feel the chain
When it works a brother's pain
Are ye not base slaves indeed,
Slaves unworthy to be freed?

Women! who shall one day bear
Sons to breathe New England air,
If ye hear, without a blush,
Deeds to make the roused blood rush
Like red lava through your veins
For your sisters now in chains—
Answer! are ye fit to be
Mothers of the brave and free?

Is true Freedom but to break
Fetters for our own dear sake,
And, with leathern hearts, forget
That we owe mankind a debt?
No! true freedom is to share
All the chains our brothers wear,
And, with heart and hand, to be
Earnest to make others free!

They are slaves who fear to speak
For the fallen and the weak;
They are slaves who will not choose
Hatred, scoffing, and abuse
Rather than in silence shrink
From the truth they needs must think;
They are slaves who dare not be
In the right with two or three.

A PSALM OF LIFE

This noble poem by Longfellow tells each one of us to do our best today, not to dream of tomorrow or mourn for the past. "Let the dead Past bury its dead" means that we must turn our back on the past, do the duties that call us today, and march forward "with a heart for any fate."

TELL me not, in mournful numbers,
Life is but an empty dream!
For the soul is dead that slumbers,
And things are not what they seem.

Life is real! Life is earnest!
And the grave is not its goal;
"Dust thou art, to dust returnest,"
Was not spoken of the soul.

Not enjoyment, and not sorrow,
Is our destined end or way;
But to act that each tomorrow
Finds us farther than today.

Art is long and Time is fleeting,
And our hearts, though stout and brave,
Still, like muffled drums, are beating
Funeral marches to the grave.

In the world's broad field of battle,
In the bivouac of Life,
Be not like dumb, driven cattle!
Be a hero in the strife!

Trust no future, howe'er pleasant!
Let the dead Past bury its dead!
Act—act in the living Present!
Heart within and God o'erhead!

Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us
Footprints on the sands of Time—

Footprints, that perhaps another,
Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
Seeing, shall take heart again.

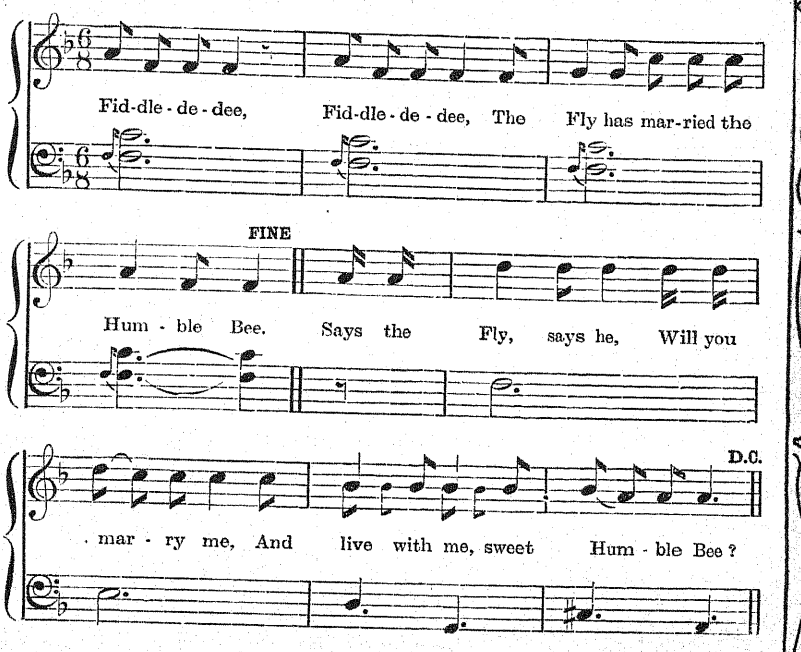
Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labour and to wait.

OZYMANDIAS OF EGYPT

The statue of an insolent king of long ago, broken amid the sands that have destroyed his gorgeous palaces, a mockery of pride, appealed powerfully—as this sonnet shows—to the imagination of Shelley, who all his life was in revolt against the spirit of tyranny. Percy Bysshe Shelley, who might have become one of the greatest poets of all time, was drowned off the coast of Italy in 1822, before he was thirty

I MET a traveller from an antique land
Who said: "Two vast and trunkless legs of stone
Stand in the desert. Near them on the sand,
Half sunk, a shattered visage lies, whose frown
And wrinkled lip and sneer of cold command
Tell that its sculptor well those passions read
Which yet survive, stamped on these lifeless things,
The hand that mocked them and the heart that fed;
And on the pedestal these words appear:
'My name is Ozymandias, king of kings;
Look on my works, ye mighty, and despair!'
Nothing beside remains. Round the decay
Of that colossal wreck, boundless and bare,
The lone and level sands stretch far away."

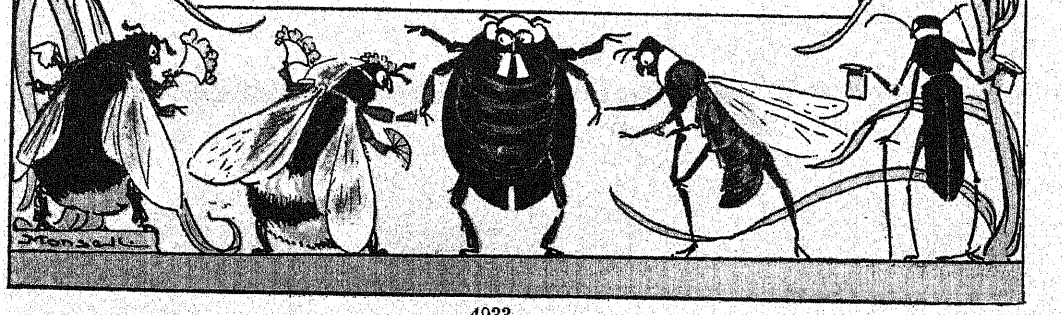
FIDDLE-DE-DEE! FIDDLE-DE-DEE!



Says the Bee, says she,
I'll live under your wing,
And you'll never know
That I carry a sting.
So, when the parson
Had joined the pair,
They both went out
To take the air.

And the Flies did buzz,
And the bells did ring;
Did ever you hear
So merry a thing?
And then to think
That, of all the Flies,
The Humble Bee
Should carry the prize!

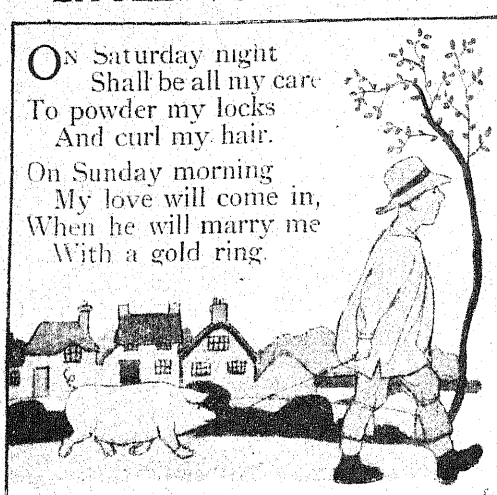
Repeat the lines "Fiddle-de-dee! Fiddle-de-dee! The Fly has married the Humble Bee" after verses 2, 3, 4, & 5.



LITTLE VERSES FOR VERY LITTLE PEOPLE

On Saturday night
Shall be all my care
To powder my locks
And curl my hair.

On Sunday morning
My love will come in,
When he will marry me
With a gold ring.



This little pig went to market,
This little pig stayed at home.
This little pig got roast beef,
This little pig got none.
This little pig cried "Wee, wee!"
All the way home.

A kiss when I wake in the morning
A kiss when I go to bed,
A kiss when I burn my fingers,
A kiss when I bump my head

A kiss when my bath is over,
A kiss when my bath begins;
My mamma is as full of kisses
As nurse is full of pins.

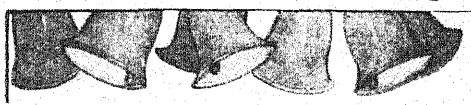
A kiss when I play with my rattle,
A kiss when I pull her hair;
She covered me over with kisses
The day that I fell downstair.

A kiss when I give her trouble,
A kiss when I give her joy;
There's nothing like mamma's kisses
To her own little baby boy.

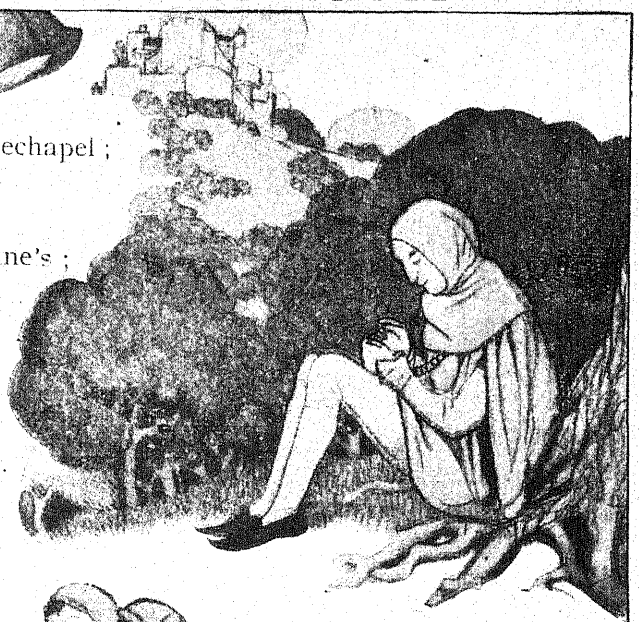
Little maid, pretty maid, whither goest thou?
"Down in the forest to milk my cow."
Shall I go with thee? "No, not now;
When I send for thee then come thou."

Bobby Shaftoe's gone to sea,
Silver buckles at his knee;
He'll come back and marry me,
Pretty Bobby Shaftoe!
Bobby Shaftoe's fat and fair,
Combing down his yellow hair:
He's my love for evermore,
Pretty Bobby Shaftoe!

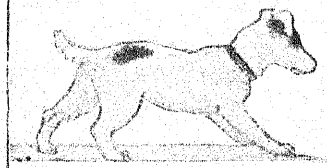
TWO STICKS AND AN APPLE



Two sticks and an apple,
Say the Bells of Whitechapel;
Old Father Bald Pate,
Say the Bells of Aldgate;
Maids in white aprons,
Say the Bells at St. Catherine's;
You owe me ten shillings,
Say the Bells at St. Helen's;
When will you pay me?
Say the Bells of Old Bailey;
When I am rich,
Say the Bells of Shoreditch;
When will that be?
Say the Bells of Stepney;
I do not know,
Says the great Bell at Bow.



There was an old man
And he had a calf,
And that's half;
He took him out of the stall
And put him on the wall,
And that's all.

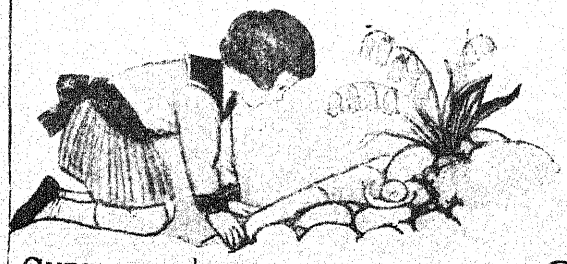


Tit-tat-toe,
My first go,
Three jolly butcher-boys
All in a row;
Stick one up, stick one down,
Stick one in the old man's crown.

Robin Hood, Robin Hood,
Is in the little wood.
Little John, Little John,
He to the town is gone.

Robin Hood, Robin Hood,
Is telling his beads,
All in the green wood,
Among the green weeds.

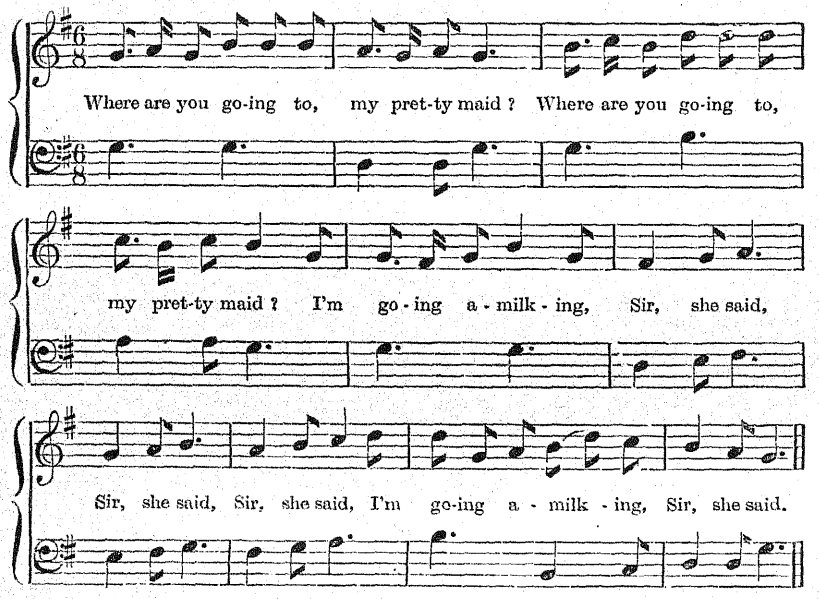
Little John, Little John,
If he comes no more,
Robin Hood, Robin Hood,
He will fret full sore.



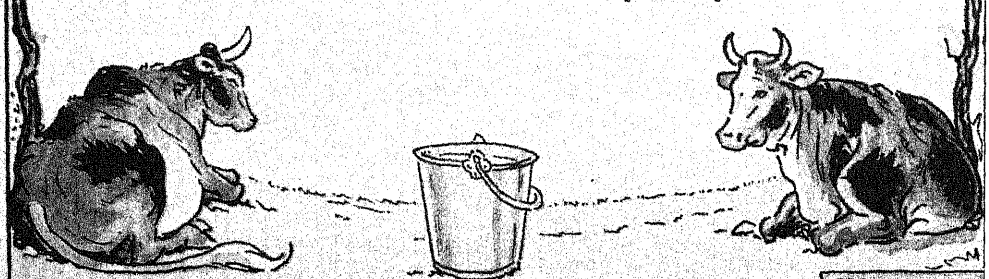
Sneel, snaul,
Robbers are coming to pull down your wall;
Sneel, snaul, put out your horn,
Robbers are coming to steal your corn.
Coming at four o'clock in the morn.

Clap, clap handies,
Mammie's wee, wee ain;
Clap, clap handies,
Daddie's comin' hame;
Hame till his bonny wee bit laddie;
Clap, clap handies, my wee, wee ain.

MY PRETTY MAID



Shall I go with you, my pretty maid ?
Yes, if you please, kind sir, she said,
Sir, she said, Sir, she said,
Yes, if you please, kind sir, she said.
What is your fortune, my pretty maid ?
My face is my fortune, sir, she said,
Sir, she said, Sir, she said
My face is my fortune, sir, she said.
Then I can't marry you, my pretty maid !
And nobody asked you, sir ! she said,
Sir, she said, Sir, she said,
And nobody asked you, sir ! she said.



Björnson

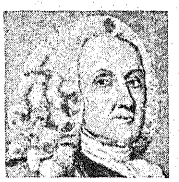
Swedenborg

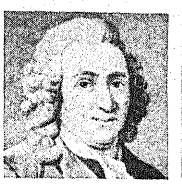
Adam Öhlenschläger

Jonas Lie

Henrik Ibsen

H. A. Wergeland


Ludvig Holberg


Carl Linnaeus

Esaias Tegner

Georg Brandes

THE LITERATURE OF SCANDINAVIA

BY Scandinavian literature we here mean the modern writings of Denmark, Norway, and Sweden which appeal to all the world as interesting and important; but we include also writings connected historically with the ancient language and stories of Iceland.

The languages of these three countries have been slowly diverging during the last thousand years from a common ancestral language. That original language is the one still spoken, with comparatively little change, in Iceland. Very curiously it has a considerable literature that was preserved in men's memories by frequent recitation until about the time when William the Conqueror was reigning in England. Then it began to be written down, and was recorded on vellum and expanded during several centuries.

These ancient written stories, called Sagas, exist in a language once in use in Denmark, Norway, and Sweden, but now superseded by the Danish, Norwegian, and Swedish developments of the old speech, so that they cannot be understood there except by special study. But in Iceland the original tongue of the Norse sea-rovers, who settled in the island over a thousand years ago, has been retained so faithfully that any Icelandic child can read and understand the tales told in the very words of their ancestors.

Thus the Scandinavian nations are in the position of having an ancient literature of their distant forefathers, for which they are indebted to their long-time-ago kinsmen in Iceland. It was chiefly Icelanders who told the stirring stories of the days when the race served strange gods of war, and who preserved the stories when they had been written down, and through them preserved the ancient language; but those stories took whoever heard them away from Iceland into Norway and Denmark and Sweden, and they reveal to us today how the people in all these northern lands lived and thought and believed and found life interesting. The collections of sagas, called the Eddas, or *things said at the tale-tellings*, are the ancient literature of all the northern peoples, including many who landed on the British coasts and settled there.

We must look at this ancient Norse literature a little more closely, for it shows us how poetry and history came into being all the world over, and it forms a mass of fanciful material from which poets and musicians of later times have selected the themes of their poems and dramas and operas.

The sagas go back into times dim with distance. They reveal to us the doings and beliefs of our forefathers before they had heard of Christianity, and also when they were hearing of it, and it was changing their hearts and lives and hopes. They cover a period of three or four hundred years.

Who wrote the sagas is not known, except one or two of the latest. First there were tales about the ancient gods, prophecies, snatches of song, and proverbial sayings. Then, as men did heroic deeds and died, clever tale-tellers (the saga-men) described their lives, introducing their words at exciting moments, with now and then a song. A next step was to tell the deeds of living men, and preserve the genealogies of families.

The subjects of the saga narratives were often not good according to Christian ideas. Bitter quarrels and revenge, admiration of strength and bravery as supreme advantages, disputes that led to trials by law, features of a rough, forceful life that ends heroically in a death which was not feared, make up a large part of these ancient tales.

THE STIRRING TALES THAT WERE MEANT TO BE SPOKEN AND NOT READ

But they include much finely imaginative legend and varied poetry, even when the narrative is in prose, as is generally the case. They were not made to be read, but to be said, and the wording swelled and sang in fine stirring sounds that had some of the effects of music or thrilling recitation. Often they were drama expressed in narrative-form.

Listening to the saga-men telling stories of the past and present, with skill in the building up of the tale, was the chief indoor amusement of the leaders of the Norsemen. A story having been told and retold till it had reached perfection in its form, perhaps after repetition by several generations, was finally written down, and so has reached us across the intervening ages during which the old language has changed into Danish, Swedish, and Norwegian.

Though we do not know who made up more than one or two of the forty sagas that have been preserved in Iceland, we do know who collected them and transmitted them to us, so that they are now preserved in the capitals of the present Scandinavian countries, a literature rescued from oblivion.

It was Ari Thorgilsson the Learned, who, living as a contemporary of William the Conqueror, wrote the Book of the Kings of Norway, and collected many sagas. He also wrote the Book of Settlements, mentioning 4000 people of his race and 2000 places where they lived: and a book of the laws of Iceland.

THE MEN WHO PASSED ON THE SAGAS OF OLD

Snorri Sturlason, who lived a century after Ari Thorgilsson, continued the work of historian and saga collector. He describes Ari as "a man wise and of good memory, and a speaker of the truth." He himself passed on his knowledge through the famous Sturlung family, who further continued the preservation of the old language and literature, ending with the fine work of the poet and historian, Sturla Thordsson, who lived between 1215 and 1284.

Thus we see that before the perfecting of the new languages of the Scandanavian countries, and cut off from modern life by the Middle Ages during which those languages were growing, is one of the world's most curious and impressive literatures, secluded, as it were, in Iceland. It may seem curious that a race which found a voice so copiously in the sagas should not continue the cultivation of dramatic and poetical speech, but the truth is that literature almost lapsed in the Scandinavian countries for fully four hundred years.

THE INTERNATIONAL LANGUAGE OF LEARNING AND THE CHURCH

The explanation is that Christianity brought with it Latin as the language of the Church, and as the international language of learning. Everyone who could write knew some Latin. The spoken language of the people came slowly into literary use. This was practically so in the smaller nations. Latin was the highway of correspondence by which their people reached the outside world. The larger nations used their own language in their books much more quickly than the smaller nations used theirs. English, through Chaucer, had become a literary tongue in the year 1400. But in Sweden the two most widely known Swedes, Swedenborg, who died in 1772, and Linnaeus, who died in 1778, wrote their books to the last in Latin, and are not known as users of their native tongue which, however, had been in literary use for some time.

Of the three northern countries, Denmark, Norway, and Sweden, which have been linked together in history in varying ways, the precedence in literature must be given to Denmark, though a remarkable number of writers, who rank as Danish were really Norwegians, drawn to Copenhagen, when it was the educational centre of the Danish-Norwegian State, before Norway joined Sweden in 1814, on her way to complete independence in 1905.

THE NORWEGIAN WHO GAVE DENMARK A LITERATURE OF HER OWN

In poetry particularly the Norwegians have been conspicuous, as might be expected from the stimulus given by the rugged grandeur of their natural surroundings, compared with the tameness of the Danish landscape. It was only when Norway was withdrawn from the Danish partnership that national pride suggested for her a distinctive literature.

The man who first gave Denmark (with Norway) a literature of her own, Baron Ludvig Holberg, was a Norwegian born at Bergen, in 1684. He went to the university of Copenhagen in 1702. Before the eighteenth century Danish literature consisted of ballads and hymns. It was said that a Danish gentleman wrote to his friends in Latin, talked to ladies in French, called his dogs in German, and swore at his servants in Danish. When Holberg died in 1754, six years after he had been made a baron, he had written, in an attractive style, books on history, law, politics, science, and philosophy, all in the national language, and he had furnished the first Danish theatre with thirty-six dramas by his own pen, while his poems covered a wide range in style and subjects. He was, in short, one of the greatest literary forces in Europe, and his influence has been felt in Denmark to this day.

THE WEALTH OF DANISH GENIUS IN THE EIGHTEENTH CENTURY

From such a start Denmark could not well recede, and the eighteenth century brought a succession of poets with lyrical genius of a high order. Christian Tullin, also a Norwegian, introduced the poetry of Nature, inspired by Thomson's Seasons. Johannes Ewald wrote the first Danish tragedy, and a lyrical drama, The Fishers, which still lives as a national poem, while as a lyrical poet he remains unexcelled. He also revealed to the Scandinavian nations the neglected sources of their own early literature. Ewald died in 1781, at the age of 37, after a life tragically mismanaged.

Herman Wessel, another Norwegian, a brilliant but short-lived poet of genius, so ridiculed on the stage the revival of the pompous style of French tragedy, that it was laughed out of fashion, and the national language and a national spirit were established there. Later, Jens Baggesen (1764–1826), the comic poet of Denmark, gave flexibility to the language by his satires and wit, but lessened his fame by the fierceness of his jealousies.

The most deservedly popular poet of the nineteenth century was Adam Öhlenschläger, who, by the power of his romantic appeal, ranks as a literary influence with Baron Holberg. Öhlenschläger went back for his subjects to the Icelandic eddas, and so stirred the imagination of his countrymen, that in 1829 he was crowned with laurel in Sweden as the Scandinavian King of Song. His masterpiece is his tragedy, Hakon Jarl.

Other notable poets were Steen Blicher, whose realistic pastoral verse has points of resemblance to Crabbe; Christian Winther, whose studies of country life and rural scenery recall Wordsworth; Henrik Hertz, a dramatist and lyrist of Jewish birth; and Frederik Paludan-Müller, a writer whose personal modesty and retiring nature contrasted with the keenness of his satire and the loftiness of his thoughts in his varied dramas.

THE PLACE OF A GREAT SCIENTIST IN THE LITERATURE OF HIS COUNTRY

It will be noted that much of the literary art of the Danes has been expended on the stage; but it has not been lacking elsewhere. For instance, Hans Christian Oersted, the discoverer of electro-magnetism, and Denmark's greatest scientist, was also such a lucid writer that, like Tyndall and Huxley in England, he claims a place in the literature of his country.

Again the Danish philosopher, Sören Kierkegaard (1813–1855) is as notable for his command of style in writing as for the subtlety and originality of his thought.

Among novelists, Herman Frederik Ewald (1821–1908) must be named for his historical stories, and his son, Carl Ewald (1856–1908) not only for his finer fiction but, above all, for his unique skill in teaching science and morals under the guise of fairy lore.

We have left to the last the names of the two men—one of the past and one of the present—who have distributed farthest throughout the world the finest fruits of

the Danish mind. Hans Christian Andersen as a writer for children and Dr. Georg Brandes as a literary critic are in their diverse ways unsurpassed.

We read of Hans Andersen among the storytellers on another page. He was born in poverty in 1805, and educated himself as a small boy by reading Holberg and Shakespeare. His formal education, after he had failed on the stage, was long and unsatisfactory; but his real education was in travel. No man ever understood himself less than he. He tried to be a poet, dramatist, novelist, and descriptive writer, but with only moderate success. What he could write, but did not value, were his inimitable sketches of fairy lore and human character in his books for children. They won the heart of the whole world, and they have kept it and will keep it, for they are among the best literature of the kind ever penned, the choicest product of Danish literature.

THE CLEVER DANISH CRITIC WHO BELONGS TO THE WORLD

Georg Brandes, born in Copenhagen in 1842 and living when The Children's Encyclopedia was printing, is of Jewish origin. What country has he not visited? What literature does he not know? Of whom has he not written? He is the universal critic. He is as painstaking as a German, and as clear and bright as a Frenchman. One could wish he had an even broader view than he has on some subjects of deepest interest to mankind, but as a literary critic he is undoubtedly the world's most learned expert. Though he is of Denmark he belongs to the world.

The literature of Norway, apart from Denmark, does not really begin until the nineteenth century; but Norway had before that time a remarkable share in the joint literature of the two countries. A sense of national pride in her writers began to grow in Norway after the establishment of a university at Christiania, in 1772, and after 1814, when the political separation from Denmark was made, the demand for an independent Norwegian literature became insistent.

For many years it took the unfortunate form of trying to separate the Danish and Norwegian tongues, though the literary form of the languages was the same, and Norway had contributed richly to its development. It was true that Norway had its own dialects, but they had no literature of any account. Henrik Wergeland (1808-1845), an impulsive young poet, son of a professor, carried his desire for a separate Norwegian tongue to such lengths that he tried to weld the various Norwegian dialects into a new tongue, leaving the joint Danish-Norwegian language to the Danes. In this he was helped by a poet, Aasmund Vinje (1818-1870), who wrote peasant poetry in a rural dialect with attractive effect; and by a novelist, Arne Garborg, who wrote stories of country life in the peasant's vernacular.

AN UNFORTUNATE QUARREL WHICH SPRANG FROM FALSE PRIDE

Then Johan Welhaven, who had some power as a descriptive poet, and far more as a bitter satirist, attacked Wergeland for disowning the language which had given Norway substantial fame. Gradually the view held by Welhaven prevailed, and Norway retained as her literary language practically the same tongue as Denmark, though there was a multiplication of dialect fiction. It was an unfortunate quarrel springing from false pride.

Norway has always had an abundance of poets, but her increasing literary fame has been achieved chiefly through fiction and the drama, though all the novelists and dramatists have touched poetry.

Her two writers most widely known throughout the world were managers of theatres during a considerable part of their lives, and the most famous of them, Henrik Ibsen, who lived from 1828 to 1906, made his great reputation entirely as a writer of plays.

Ibsen was very slow in gaining the recognition his remarkable literary gifts deserved, and he was embittered by delayed success to such an extent that much of his writing is an exposure of his countrymen for being a smug, hypocritical, conventional, unromantic people, who could not or would not appreciate life as he saw it. He was at war with a world that would not understand him. In the end he won, and he broadened his view as he succeeded, till he died in a blaze of triumph, with his statue erected in the capital of his country.

THE POWERFUL NORWEGIAN WRITER WHO WON HIS FIRST FAME ABROAD

The stormy character of Ibsen's career is accounted for by the fact that he was a critic of his fellow men, and particularly of his own race. He persisted in showing what was mean and wrong in them. His was the power of exposing weaknesses,

and he was in a rage with his countrymen because they did not like it. They, too, were often in a rage with him. Foreigners, who do not see Norwegians as Ibsen saw them, recognised the scathing cleverness of his plays, and presently his fame abroad exalted him in the eyes of Norwegians, and their pride in their country's son conquered their anger.

The son of a Bergen merchant, Ibsen was in his youth a gloomy apprentice to an apothecary, and a writer of romantic verse. Naturally he turned to journalism and then to the stage. In this his instinct was true, for no man has ever had a clearer perception of how simple language can be used dramatically to produce great effects. His first great success was in a saga-drama, The Warriors in Helgeland, but it was in social dramas that Ibsen made his world-wide fame, his principal plays being Brand, Peer Gynt, The Master Builder, Pillars of Society, A Doll's House, Ghosts, An Enemy of the People, and Hedda Gabbler. In Peer Gynt, which was started as a satire on Norwegian weaknesses, Ibsen became mastered by his interest in his character-sketch, and reached the highest flight of his poetical power. As a lyrical drama Peer Gynt is further known through the music of the Norwegian composer Edward Grieg so that it is most popular of all Ibsen's creations.

THE NOVELIST WHO PICTURED THE LIFE OF SCANDINAVIA'S PEASANT FOLK

The fashion for Ibsen has now abated, though always there have been admirers who have had reservations about his moral influence. Of the intensity of his genius few will doubt, but it lacks breadth. His plays show Ibsen at war with the world rather than interpreting it in a generous, understanding spirit.

Björnstjerne Björnson, who was born in 1832 and died at 78, was Norway's most widely-known novelist. He was reared in the Romsdal, known to all tourists to central Norway, and after writing poetry as a boy he became a journalist, and then a manager of theatres—like Ibsen—at Bergen and Christiania. Björnson was a man with enormous vitality, a true poet, a writer of fine dramas both social and heroic, an eager politician, eloquent and fearless. But he reached his highest distinction as a writer of stories of peasant life, with Arne of Synnöve as his masterpiece. He it was who turned the scale in the controversy over Norway's classical language. Admitting that the peasant life of Norway is its essential life, he showed in his own writings that it can be more fully pictured in the literary language of the country than by restriction to the rural dialects, which have their interest and use, but are incomplete.

The most popular novelist in Norway itself has been Jonas Lie (1833–1908), who, after living as a boy in Tromsö, became a lawyer, turned to poetry, tried journalism, and failed; but won popularity by his pictures in well-observed detail of the life of the seafaring people of the Norwegian fiords. Jonas Lie's stories have won a large circulation by their fidelity to life rather than their literary power.

KNUT HAMSUN AND THE NOVELS THAT HAVE COME OUT OF HIS LIFE

Ibsen, Björnson, and Jonas Lie all obtained from the Norwegian Parliament pensions for life as writers of national importance, and so were enabled to give their best work to their country and the world without anxiety as to their fate when age brought a decline of earning power.

More recently, Norwegian fiction has received a new strength from the fine work of Knud Hamsun and Hans Aanrud, both of whom have the power of building up a cumulative impression of intense reality as they picture the life of their countrymen in closest touch with Nature.

Knut Hamsun has been read much more extensively in England since he was awarded the Nobel Prize for literature in 1920. The first of his novels to become fairly well-known abroad, Hunger, did not conform to the British idea of Norwegian character. No doubt it was an outcome of Hamsun's early experiences during a wandering life on both sides of the Atlantic, when he was depending on manual labour for a living. It was restless and impulsive, and lacked the steady thoughtfulness demanded by good art. It seemed to be an explosive outburst from an embittered man. But it arrested attention in his own country, and gained him a hearing that brought a deeper sense of responsibility.

THE GREAT CHANGE THAT CAME OVER KNUT HAMSUN'S WORK

Seldom has a novelist shown a greater change than Hamsun between the time when he wrote Hunger and the time when he wrote the book that won for him a well deserved European reputation—The Growth of the Soil. His hero in this fine story is a Norwegian peasant, who with the

slenderest resources, gets a footing on the soil, and with it a firm grip of life. The slow, firm progress of the man settled on the land seems to be the very counterpart of the author building up his theme with an impressive strength and patience.

Dr. Nansen, the famous explorer and scientist, has also a place in the literature of his country, through his epic narratives of adventure in Greenland and the Polar Seas, and his historical account of the early Norse explorers who discovered America long before the days of Columbus.

Sweden has as long a literary history as Denmark. In its modern form, after a period producing chiefly folk lore, it began with Georg Stjernhjelm (1598–1672), who wrote a poem on Hercules. His writings covered a very wide range of subjects, mostly serious, but including masques, which were then a popular form of royal entertainment. He became poet-laureate.

THE CLEVER COPYIST WHO WAS MUCH INFLUENCED BY ENGLISH WRITERS

Early Swedish literature was powerfully influenced from abroad, and was imitative, first of German and Italian, and then of French and English writers. The leading Swedish writer who wrote according to English models, and was the best writer after Stjernhjelm, was Olaf Von Dalin (1708–1763). Addison, Pope and Swift were his exemplars, and his style had a graceful finish like theirs. He also wrote a History of the Swedish Kingdom, and an epic poem on Swedish Freedom. He was a copyist, but a very clever copyist, and he decidedly added to Sweden's literature.

In the reigns of Gustavus the Third and Gustavus the Fourth (1771 to 1809) literature flourished in Sweden. Gustavus the Third wrote some sound plays himself. But the writing of this period was conventional in style. Bellman, Oxenstjerna, Kellgren, and Leopold had more originality as poets, and Kellgren and Leopold were writers of strong prose.

THE SAGA-POEM THAT CARRIED TEGNER'S FAME THROUGH EUROPE

Later Esaias Tegner (1782–1846) became the most widely known Swedish writer, his works being translated into all European languages. His patriotic poem Svea won the prize of the Swedish Academy and a university professorship. It was his Story of Frithiof, a saga-poem, that carried his fame through Europe.

A writer whose works vied in popularity with Tegner's poems was Fredrika Bremer (1801–1865), a Finnish lady with a graceful pen, whose stories were translated into English by Mary Howitt. In later life Miss Bremer became an active philanthropist, and an advocate of woman's movements, and she weakened her literary position by writing poems with a purpose.

The leading Swedish poet after Tegner has been Ludvig Runeberg (1804–1877), a Finlander born. His poems tended to link Sweden and Finland together, and include most charming idylls of Finnish life. As a dramatist he was less successful.

In connection with Finland mention must be made of Professor Elias Lönnrot, to whom the world owes the recovery from oblivion of the remarkable Finnish folk-lore poem Kalevala, which gave to Longfellow the rhythm used in his Hiawatha, and probably suggested the writing of that well-known poem.

The most widely discussed Swedish novelist is Johan August Strindberg, who has been nursed in the direction of a fashion by a certain type of critic. Strindberg is a fine literary workman, but a blunt realist in what is objectionable. He writes under the sway of a violent pessimism, and the heart of the world will not long cherish writing, however clever it may be, if it is chiefly strong and nasty.

THE HIGH SCHOOL TEACHER WHO WON THE NOBEL PRIZE

Vernher von Heidenstam, lyrical poet, romantic novelist, and thoughtful critic, has been a useful antidote to the pessimism of Strindberg.

A lady who must be mentioned for her thoughtful essays and her striking writings on education is Miss Ellen Key (born 1849). Miss Key, whose ancestry was Scottish, was for many years lecturer on the History of Civilisation in the University of Stockholm, but became more widely known as a speaker on social reform and many subjects connected with it.

Miss Selma Lagerlöf, formerly a High School teacher, and a winner of the Nobel prize for literature, has written many charming stories which are widely translated, and internationally enjoyed.

On the whole, Swedish literature, though generally pleasing, has not produced much that is great. But Scandinavian literature, from the long past to the present hour, has a full and fine record in proportion to the number of people in the lands which have inherited the romantic tradition of Iceland.

The Story of the Most Beautiful Book in the World

The Wisest Words Ever Spoken

THE wisest words ever heard upon the Earth were the words that Jesus spoke. Never in the hundred centuries of recorded history had such words fallen upon the ears of men as those that fell by the wayside in Bethlehem, or across the placid waters of the Lake of Galilee, or on the seashore of Capernaum, or in the hills around Jerusalem ; in some quiet place where two or three were gathered together, or in the pressing throng of the busy streets. They come to us across nineteen hundred years with something like the sound of music; and though some of them are full of deep, strange mystery, most of them are simple words that all can understand, and they thrill us with the love of good and noble things. Among all the words of Jesus that have come down to us, none are more beautiful, more simple, more haunting, than those we give here from the Sermon on the Mount.

THE SERMON ON THE MOUNT

On the day when Jesus went up into the mountain and spoke to the multitude, he scattered the seed that has borne a mighty harvest in the lives of millions of people in every land, for he showed us, in this Sermon on the Mount, where the strong foundations of character are to be set. We are to live simply and truly, with love toward men and faith in God. We are to tread the narrow way, however hard it be, so that our strength shall be established like the house built on a rock

BLESSED are the poor in spirit, for their's is the kingdom of heaven.

Blessed are they that mourn, for they shall be comforted.

Blessed are the meek, for they shall inherit the earth.

Blessed are they which do hunger and thirst after righteousness, for they shall be filled.

Blessed are the merciful, for they shall obtain mercy.

Blessed are the pure in heart, for they shall see God.

Blessed are the peacemakers, for they shall be called the children of God.

Blessed are they which are persecuted for righteousness' sake, for their's is the kingdom of heaven.

Blessed are ye when men shall revile you, and persecute you, and shall say all manner of evil against you falsely, for My sake. Rejoice, and be exceeding glad, for great is your reward in heaven, for so persecuted they the prophets which were before you.

Ye are the salt of the earth, but if the salt have lost his savour, wherewith shall it be salted ? It is thenceforth good for nothing, but to be cast out, and to be trodden under foot of men.

Ye are the light of the world. A city that is set on a hill cannot be hid. Neither do men light a candle and put it under a bushel, but on a candlestick, and it giveth light unto all that are in the house. Let your light so shine before men that they may see your good works and glorify your Father which is in heaven.

Think not that I am come to destroy the law, or the prophets : I am not come to destroy, but to fulfil. For verily I say unto you, Till heaven and earth pass, one jot or one tittle shall in no wise pass from the law till all be fulfilled.

Whosoever therefore shall break one of these least commandments, and shall teach men so, he shall be called the least in the kingdom of heaven ; but whosoever shall do and teach them, the same shall be called great in the kingdom of heaven. For I say unto you that except your righteousness shall exceed the righteousness of the Scribes and Pharisees ye shall in no case enter into the kingdom of heaven.

Ye have heard that it was said by them of old time : Thou shalt not kill, and whosoever shall kill shall be in danger of the judgment ; but I say unto you that whosoever is angry with his brother without a cause shall be in danger of the judgment.

WIDE IS THE GATE AND BROAD IS THE WAY THAT LEADETH TO DESTRUCTION

Agree with thine adversary quickly, whiles thou art in the way with him; lest at any time the adversary deliver thee to the judge, and the judge deliver thee to the officer, and thou be cast into prison. Verily I say unto thee, Thou shalt by no means come out thence till thou hast paid the uttermost farthing.

Again, ye have heard that it hath been said by them of old time, "Thou shalt not forswear thyself, but shalt perform unto the Lord thine oaths." But I say unto you, Swear not at all: neither by heaven, for it is God's throne; nor by the earth, for it is His footstool; neither by Jerusalem, for it is the city of the great King. Neither shalt thou swear by thy head, because thou canst not make one hair white or black. But let your communication be, Yea, yea; Nay, nay; for whatsoever is more than these cometh of evil.

Ye have heard that it hath been said, "An eye for an eye and a tooth for a tooth." But I say unto you that ye resist not evil; but whosoever shall smite thee on thy right cheek, turn on him the other also. And if any man will sue thee at the law, and take away thy coat, let him have thy cloak also. And whosoever shall compel thee to go a mile, go with him twain.

Give to him that asketh thee, and from him that would borrow of thee turn not thou away.

Ye have heard that it hath been said, "Thou shalt love thy neighbour, and hate thine enemy." But I say unto you, Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you and persecute you, that ye may be the children of your Father which is in heaven; for He maketh His sun to rise on the evil and on the good, and sendeth rain on the just and on the unjust.

For if ye love them which love you, what reward have ye? Do not even the publicans the same? And if ye salute your brethren only, what do ye more than others? Do not even the publicans so?

Be ye therefore perfect, even as your Father which is in heaven is perfect.

Take heed that ye do not your alms before men to be seen of them; otherwise ye have no reward of your Father which is in heaven.

Therefore, when thou doest thine alms, do not sound a trumpet before thee, as the hypocrites do in the synagogues and in the streets, that they may have glory of men. Verily I say unto you, They have their reward.

But when thou doest alms let not thy left hand know what thy right hand doeth, that thine alms may be in secret, and thy Father which seeth in secret Himself shall reward thee openly. And when thou prayest, thou shalt not be as the hypocrites are, for they love to pray standing in the synagogues and in the corners of the streets, that they may be seen of men. Verily I say unto you, They have their reward. But when ye pray, use not vain repetitions, as the heathen do, for they think that they shall be heard for their much speaking. Be not ye therefore like unto them; for your Father knoweth what things ye have need of before ye ask Him.

After this manner therefore pray ye:

Our Father which art in heaven, Hallowed be Thy name. Thy kingdom come. Thy will be done in earth, as it is in heaven. Give us this day our daily bread, and forgive us our debts, as we forgive our debtors; and lead us not into temptation, but deliver us from evil, for Thine is the kingdom, and the power, and the glory, for ever. Amen.

For if ye forgive men their trespasses, your heavenly Father will also forgive you; but if ye forgive not men their trespasses neither will your Father forgive your trespasses.

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal; but lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal. For where your treasure is there will your heart be also.

The light of the body is the eye; if therefore thine eye be single, thy whole body shall be full of light. But if thine eye be evil, thy whole body shall be full of darkness. If therefore the light that is in thee be darkness, how great is that darkness!

No man can serve two masters; for either he will hate the one and love the other, or else he will hold to the one and despise the other. Ye cannot serve God and mammon.

STRAIT IS THE GATE AND NARROW IS THE WAY WHICH LEADETH UNTO LIFE

Therefore I say unto you, Take no thought for your life, what ye shall eat or what ye shall drink, nor yet for your body, what ye shall put on. Is not the life more than meat, and the body than raiment?

Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns, yet your heavenly Father feedeth them. Are ye not much better than they? Which of you, by taking thought, can add one cubit unto his stature? And why take ye thought for raiment? Consider the lilies of the field, how they grow: they toil not, neither do they spin; and yet I say unto you that even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which today is, and tomorrow is cast into the oven, shall He not much more clothe you, O ye of little faith?

Therefore take no thought, saying, What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed? for your heavenly Father knoweth that ye have need of all these things. But seek ye first the kingdom of God and His righteousness, and all these things shall be added unto you.

Take, therefore, no thought for the morrow, for the morrow shall take thought for the things of itself. Sufficient unto the day is the evil thereof.

Judge not, that ye be not judged, for with what judgment ye judge, ye shall be judged, and with what measure ye mete, it shall be measured to you again.

And why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?

Or how wilt thou say to thy brother, "Let me pull out the mote out of thine eye," and, behold! a beam is in thine own eye?

Thou hypocrite, first cast out the beam out of thine own eye; and then shalt thou see clearly to cast out the mote out of thy brother's eye.

Give not that which is holy unto the dogs, neither cast ye your pearls before swine, lest they trample them under their feet, and turn again and rend you.

Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you; for every one that asketh receiveth, and he that seeketh findeth, and to him that knocketh it shall be opened.

Or what man is there of you, whom if his son ask bread, will he give him a stone? Or if he ask a fish, will he give him a serpent? If ye, then, being evil, know how to give good gifts unto your children, how much more shall your Father which is in heaven give good things to them that ask Him? Therefore all things whatsoever ye would that men should do to you, do you even so to them.

Enter ye in at the strait gate, for wide is the gate and broad is the way that leadeth to destruction, and many there be which go in thereat; because strait is the gate and narrow is the way which leadeth unto life, and few there be that find it.

Beware of false prophets, which come to you in sheep's clothing, but inwardly they are ravening wolves. Ye shall know them by their fruits. Do men gather grapes of thorns, or figs of thistles? Even so every good tree bringeth forth good fruit; but a corrupt tree bringeth forth evil fruit. A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit.

Every tree that bringeth not forth good fruit is hewn down, and cast into the fire. Wherefore by their fruits ye shall know them.

Not every one that saith unto me, Lord, Lord, shall enter into the kingdom of heaven; but he that doeth the will of my Father which is in heaven.

Whosoever heareth these sayings of Mine, and doeth them, I will liken him unto a wise man, which built his house upon a rock; and the rain descended, and the floods came, and the winds blew, and beat upon that house, and it fell not, for it was founded upon a rock.

And every one that heareth these sayings of Mine, and doeth them not, shall be likened unto a foolish man, which built his house upon the sand; and the rain descended, and the floods came, and the winds blew, and beat upon that house, and it fell, and great was the fall of it.

BLESSED ARE THEY

BLESSED ARE THEY THAT MOURN

AGREE WITH THINE ADVERSARY QUICKLY

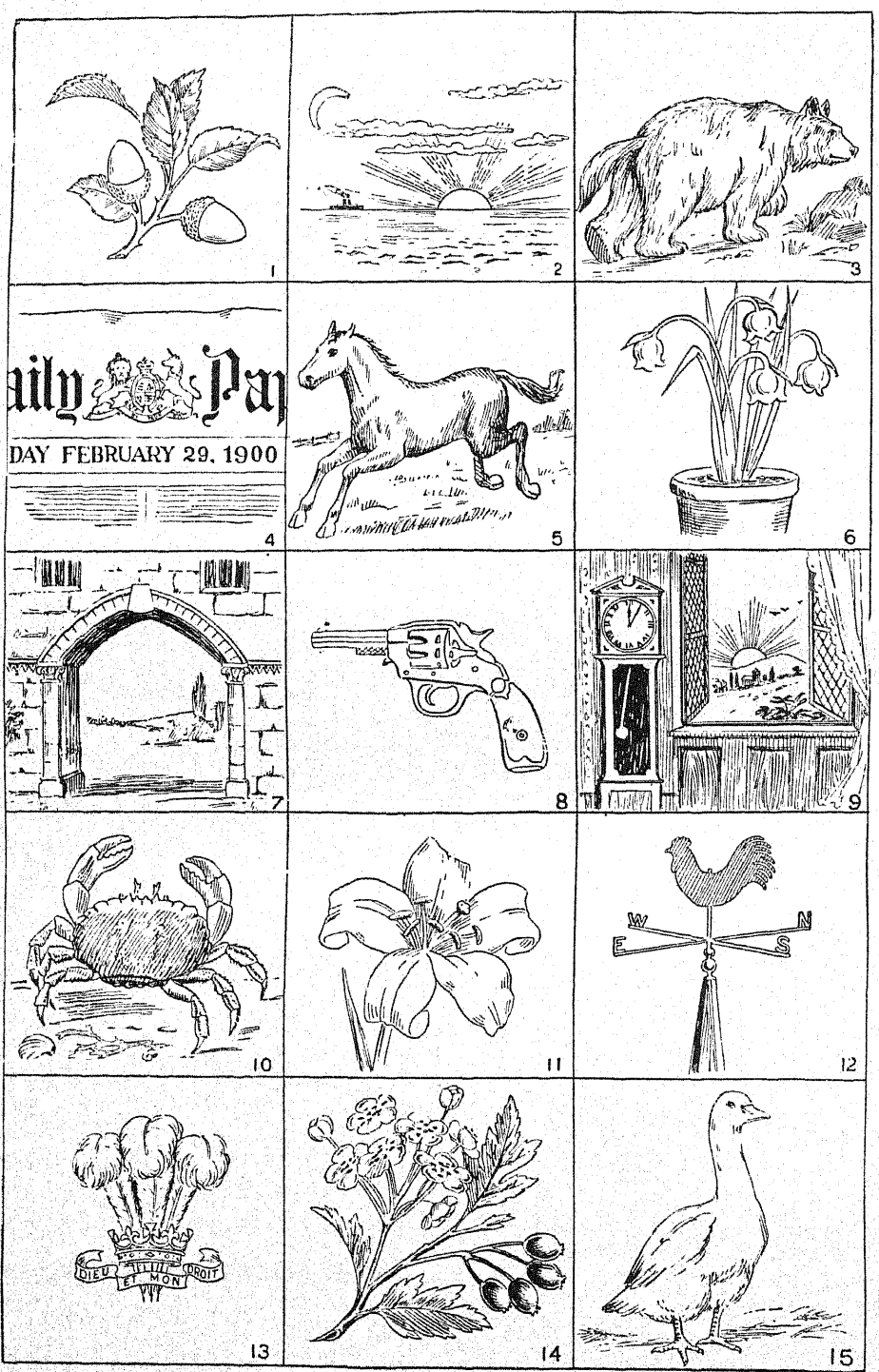
BLESSED ARE THE MERCIFUL

DO NOT YOUR ALMS BEFORE MEN

BLESSED ARE THE PEACEMAKERS, FOR THEY SHALL BE CALLED THE CHILDREN OF GOD

SOLOMON IN ALL HIS GLORY WAS NOT ARRAYED LIKE ONE OF THESE

WHAT IS WRONG IN THESE PICTURES?



These pictures will help us to cultivate our power of observation—the power of really seeing with our mind. Something is wrong with each one of the pictures. If we study them we shall see what it is. The mistakes are pointed out in Section 41 of Group 18.

THE GAME OF FOOTBALL

As cricket is the king of summer games, so football is the king of all winter games, whether in its Rugby or Association form. Both games call for many things in common, such as bodily strength and agility, speed and staying power in running, quickness both of eye and mind, pluck and dogged perseverance, and unselfishness and good temper.

RUGBY FOOTBALL

THE distinguishing feature of Rugby Union football is the handling of the ball, which is of an oval shape. In this game there are fifteen players on each side

The fifteen players are allotted different positions and have different duties. There are usually eight forwards, two half-backs, four three-quarter-backs, and one full back.

The object of the game is to place the ball on the ground behind the opponents' goal-line The opposing side endeavours to prevent this by bringing down the man carrying the ball.

If a player becomes unintentionally offside, or if the ball is thrown or knocked forward with the hands, a scrummage is formed. Eight forwards link themselves together, put their heads down, and push against the eight opposing forwards, three being in the front row, two in the second row, and three in the third. The ball is rolled into the centre of the scrummage by one of the half-backs, and the front row of each side try to hee it out to the half-backs. These, in turn, pass it out to the three-quarter-backs, who should be standing well back so that when they receive the ball they are moving at top speed; and these players at once race with it towards the goal, trying to dodge the opposing three-quarters

Here are the chief points to be aimed at. The full-back has to defend the goal-line. He must be able to catch the ball or pick it up as cleanly as a cricket-ball, to kick equally well with either foot, whether standing still or running full speed, and to make certain of collaring his foe, going for him low.

The three-quarters must be very speedy, especially the two wing three-quarters; they must learn to run together and be able to catch a pass when going at full speed. The half-back needs the same qualities, and also has to be very nimble and quick at picking the ball off the ground.

The scrum-half throws the ball nto the scrummage and watches it, ready to pick it up if it is heeled out by his side, or to collar the opposing half if he gets it before he can pass the ball to the stand-off half.

The forwards have, perhaps, most of the hard work, and they, too, must be speedy in the open game as played today. They must be always close to the ball, dribbling when there is no chance of picking up the ball, marking the opposing forwards in the throw-out from touch, and pushing in the scrummages with all their might. The front row must endeavour to hook the ball when it is thrown into the scrummage

Another method of gaining ground in order to reach the opponents' goal is by kicking down the field into touch—that is, out of the field of play. Every player should practise kicking the ball accurately with either foot.

When a player gets the ball across the line it is a try, scoring three. The losing side then goes behind the line, and one of the side that scored the try lies on the ground and holds

the ball in position for a kick by one of his own side, who, if he kicks it over the cross-bar of the goal, scores an additional two A penalty goal—a goal scored from a free kick allowed for an infringement—scores three; a dropped goal, a goal scored by dropping the ball and kicking it as it bounces, scores four The game is won by the side that scores the greater number of points.

ASSOCIATION FOOTBALL

A PROPER side in Association football must number eleven players, these being a goal-keeper, two backs, three half-backs, and five forwards. A game should last about an hour and a half, and a change of ends is made at half-time, so that the opposing sides may have a fair and equal chance should wind, sun, a slope in the pitch, or any other such condition give an advantage.

The object of each side is to send the ball through their opponents' goal, but to do this fairly the ball must on no account be propelled or purposely touched by hand, nor must any player use his hands to hold or impede another player. The only players who may catch, throw, or strike the ball with their hands while it is in play are the goalkeepers.

It is very important to observe this rule against handling either ball or opponent, as, apart from the free kick given against the side whose player uses his hands, nothing tends more to spoil the enjoyment of football than frequent stoppages for these fouls as they are termed.

In playing every effort should be made to keep the ball within the touch-lines, for should a player kick the ball over the line at the side of the playing-pitch, the opposing side are awarded a throw-in. The player—it is customary for a half-back to do it—who throws in the ball must use both hands, holding the ball above his head, and must keep both feet on the line

In the case of a player putting the ball over the line that runs from his own side's goal out to the corner flag, he places his side in danger of losing a goal by reason of the free kick from the corner given to his opponents as a result of his miss-kick. On the other hand, by kicking the ball across the lines running out from the opposite side's goal to the corner flags, it becomes dead, or in touch, and the side defending that end becomes entitled to a free kick

Learn to keep the ball low when passing and placing, as kicking the ball high wastes time and gives the opponents a better chance of seeing where it is going.

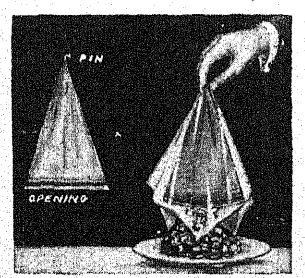
The ability, too, to use the head as well as the feet is most useful, and should be practised, as goals are many a time saved and often scored by players who can accurately direct the ball with their heads when it cannot be reached in time with the foot.

Good team-work is, of course, essential to a successful season. The boy who wishes to become a useful and capable player should remember that it is unprofitable to one's side to be selfish with the ball. To play in harmony with the other members of the side is a more certain way to command success.

A CONJURING TRICK WITH NUTS

THERE is an excellent conjuring trick that can be performed with very little preparation or apparatus.

We hand round for the inspection of the audience an empty dessert plate and a clean pocket-handkerchief. These can be handled by anyone who likes to prove that they have no secret pockets or recesses. We now place the empty plate on the table, spread over it the pocket-handkerchief, and then, after making a few mysterious passes with the hand or a wand, we raise the handkerchief and shake out of it on the plate a number of sweetmeats, or nuts.



THE TRICK BAG

This is the explanation of the trick. We make a small triangular bag, as shown in the first picture, by sewing together two triangular pieces of linen or calico, and in the two hems on each side of the opening we sew straight pieces of watch-spring, taking care that in each case the spring goes the whole length of the hem. These springs, if flat, will close the opening of the bag, and keep it closed unless force is used. A bent pin is put through the apex.

Nuts or sweetmeats are now placed in the bag, and the spring closes the mould so that when the bag is suspended they will not fall out. Having prepared the bag in this way, we hang it by the hooked pin on the side of the table that is away from the spectators.

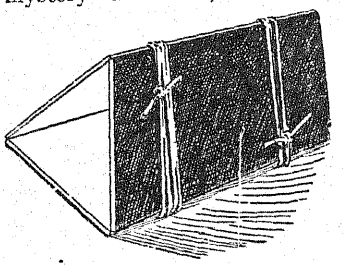
After showing the empty plate to the audience, we place it on the table near the edge where the bag is suspended, and in spreading the handkerchief over it we see that part of it hangs over the edge of the table where the hooked pin is. Then in picking up the handkerchief we dexterously pick up with it the bag, the handkerchief falling all round so as to hide the bag from sight.

The rest of the trick is, of course, simple. We shake the handkerchief with a few vigorous jerks and the impact of the nuts or sweets parts the springs, and allows the objects to fall out on the plate.

The bag is then dropped behind the table, which should have a thick cloth on it, which reaches almost to the floor.

MAKING A KALEIDOSCOPE

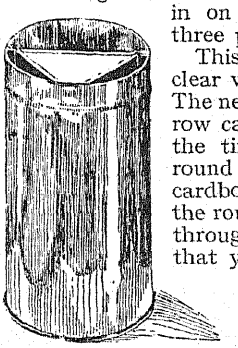
THE kaleidoscope is the most famous toy in the world. There is a great deal of mystery about it, and many grown-up people will be puzzled to know how all the beautiful things that can be seen in the kaleidoscope are made to appear.



1. The Three Pieces of Glass

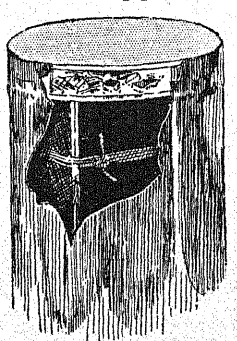
Kaleidoscope is a word made from three Greek words, and means an instrument with which we can see things of beautiful form. The three words are KALOS, beautiful, EIDOS, form, and SKOPEO, I see. Sometimes people make large kaleidoscopes, and if there are three large mirrors in our house we can make one too. If we put the three mirrors together so as to form a triangle, and stand in the middle of the triangle, we shall see how one boy or girl can become a large crowd. We shall see not only our reflection in the mirror, but also *the reflection of our reflections* repeated many times. If there is a light above our head, and the mirrors incline a little toward each other at the top, the effect will be more remarkable still.

But not many people have these large mirrors, and even if they have they may not be able to bring them together into the form of a triangle. So we shall make a small kaleidoscope, one that we can hold in our hands.



2. The Glass in the Tin

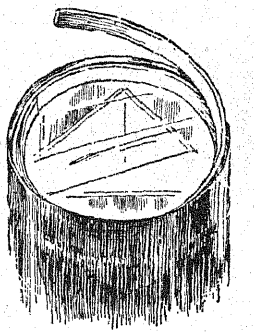
First we must get a small round tin box; an empty cocoa or mustard tin will do if it is round. Now take a nail with a sharp point and make a hole in the middle of the bottom of the tin. The hole will not be quite large enough, and we need something with a sharp point to make it larger, about as large as a threepenny-piece. Now we need three pieces of glass half an inch shorter than the tin is deep, and just so wide that when we place the three in the box, in the form of a triangle, their corners will touch the sides of the tin, with very little room to spare. If we can get three pieces of looking-glass so much the better. If we use common glass we must paste black paper on the back of each piece. Picture 2 shows the position of the glass when it is fixed in the tin.



3. Inside the Kaleidoscope

The best way to find the proper size of the three pieces of glass is to cut out pieces of cardboard, all exactly alike, until we find out the right size to go into the tin to make the proper triangle; then we have only to buy three pieces of glass the same size as the card.

Before putting the glasses into the box, tie them together, as in picture 1, so that they will remain in position. Then put them into the box. If we have made the glasses the right size they will come to within half an inch of the top of the rim of the tin. Now we must get a round piece of glass that will go into the tin easily and fit in on the top of the ends of the three pieces of glass.

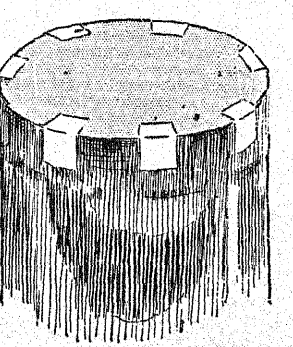


4. The Cardboard Ring

This piece of glass must be quite clear without any black paper on it. The next thing to do is to make a narrow cardboard ring and fix it inside the tin (see picture 4), to keep the round glass from falling out. The cardboard ring must be so thick that the round piece of glass will not fall through it, and must be narrow, so that yet another round piece of glass may go on the top of it and still be just under the edge of the tin. This second round piece of glass must be *obscured* glass—the white-looking glass that you cannot see through. This can be bought from a glazier.

Before putting on this second piece of glass, we must find some small pieces of broken coloured glass or coloured glass beads. These will lie in the space between the two round pieces of glass. Now we make the second piece of glass fast in some way so that it will not fall out when we turn up the tin.

There are several ways of doing this. If the top piece of glass is very little below the top of the tin, we can bend the edge of the tin inwards a little; or we can gum some paper to the top piece of glass, as shown in picture 5, gumming it also to the tin. But if we do this we must not put the paper far



5. Fixing the Glass Disc

enough over the glass to come into the inside of the triangle.

It is desirable to cover the tin with coloured paper, and the kaleidoscope is then complete. If we look through the hole in the bottom, holding the other end up to the light, and turn it round and round, thousands of pictures will come before our eyes.

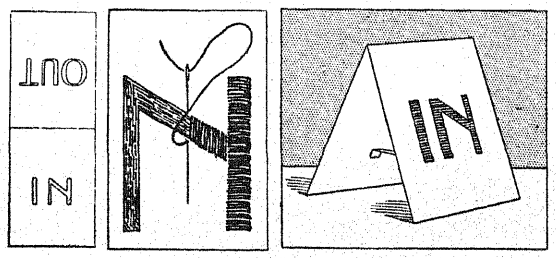
It is impossible to count the number of new pictures made with a kaleidoscope. No two are ever quite the same. The pieces of glass are *reflected* in the three mirrors many times, and all the reflections make what is called a pattern.

Designers of carpets and other things often use a kaleidoscope to give them patterns.

SOMETHING TO MAKE FOR A DESK

THIS little gift has the advantage of being suitable for either a man or a woman; is quite easy to make, is quickly done, and costs very little indeed.

It is one of those small stands which are kept on a desk or in the entrance-hall. It has IN on one side and OUT on the other, and the owner usually turns it round so that the side which faces callers shows them whether he is in or out at the moment. It is made of pale green linen and shaped like a needle-book cover—without leaves, of course. The size is that of an ordinary post-card, 5¼ inches by 3½ inches We can therefore use two cards put together to stiffen the sides.



THE LETTERING, EMBROIDERY, AND STAND COMPLETE

First, we must embroider the two words on the linen. We must note well how they are arranged in the first picture, one reading one way and one the other; and also how the letters themselves are formed, and copy them carefully in the required position in pencil. The position can be found easily by placing the postcards on the linen so as to leave a small space, about an eighth of an inch, between the cards to form the hinge, and enough stuff all round to turn in.

To embroider our letters successfully we must work them over quite thickly. This is best done by stitching them first with a darning stitch, as in the second picture.

Note that the darning stitches, or pad, go up, and that the covering stitches go across. We had better work them in black or dark green maliard floss silk, and, when finished, press them carefully on the wrong side.

Next we lay our stiffening cards on the linen, and stick them in position. We turn in the edges, and lay a similar-sized piece of linen over the whole, turn in the edges of that to fit, and sew very neatly all round the edge, over and over, in silk

The second piece of linen, of course, is laid over the wrong side of the card, to hide the turnings and make it all neat inside.

We shall need a few stitches along the hinge to keep it from bagging underneath, keeping big stitches on the underside of the hinge and tiny ones on the outside.

If we have left our hinge too large it will not allow the stand to stand up, in which case we must sew a little piece of green baby-ribbon in between the sides underneath, as shown in the third picture. This will hold them firm and prevent their slipping apart.

If we think that the pale green would soil too quickly, quite as good an effect can be obtained by using a dark green linen instead, a dull, art green shade, and embroidering the letters in old gold silk.

ANSWERS TO THE PENNY PROBLEMS ON PAGE 4830

1. CHANGING SIDES

Calling the empty space o, and using H for head and T for tail, the moves are as follows:

1.	H from 3 to o	8.	T from 4 to 3
2.	T from 4 to 3	9	T from 6 to 4
3.	T from 5 to 4	10	H from 5 to 6
4.	H from o to 5	11	H from o to 5
5.	H from 2 to o	12	H from 2 to o
6.	H from 1 to 2	13.	T from 3 to 2
7.	T from 3 to 1	14.	T from 4 to 3

15. H from o to 4

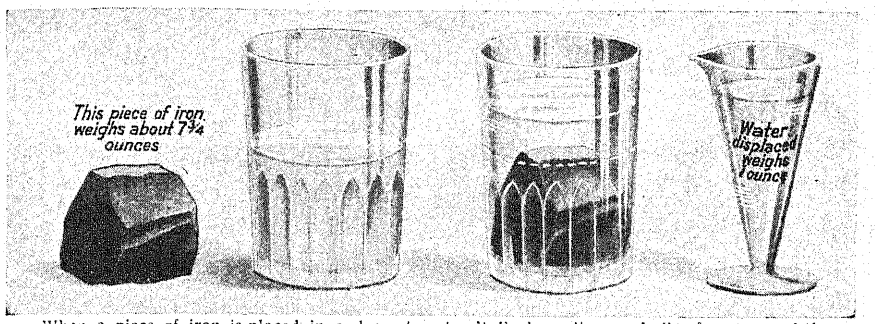
Though there are many moves they are easily followed when once the idea is grasped. The great secret is never to get two heads together—until both have passed the three tails—and never to get two tails together. When this method is properly understood, it is just as easy to do the puzzle with eight, ten, twelve, or any other number of coins.

2. HEADS AND TAILS

This problem seems difficult, but it can be done in four moves. Move the coins in spaces 2 and 3 into spaces 9 and 10; move the coins in spaces 5 and 6 into spaces 2 and 3; move the coins from spaces 8 and 9 into spaces 5 and 6; finally, move the coins from spaces 1 and 2 into spaces 8 and 9.

3. PAIRING THE PENNIES

This problem is easily solved by making the following moves: we shift 4 on to 7, 6 on to 2, 1 on to 3, and finally move 5 on to 8.



When a piece of iron is placed in a glass of water it displaces its own bulk of water, and the liquid rises as seen in the second glass. If the displaced water and the iron are weighed, it will be found that the iron is about 7¾ times as heavy as the water, and so its specific gravity is 7¾.

THE SIZE AND WEIGHT OF THINGS

WE have read about the way in which things are measured—the measurement of time, temperature and mass, and so on; and we have learned also to distinguish between weight and mass. We should also know something about that very interesting thing which is called specific gravity. Gravity is the pulling force which imparts weight to the mass of a substance, and it changes its value with the place where a body is weighed: that is to say, according to the distance of the body from the larger mass which appears to exert the pulling force on it.

But there are other properties of matter which influence a body's weight, besides the place where it is weighed; otherwise equal quantities or volumes of different substances would all weigh the same in the same place. Some substances seem more closely packed than others, and weigh more, as we say; but if we try to get down to the root of things we have to say that their atoms are heavier. We can classify and measure these differences, and they are called differences in *specific* gravity.

The word specific, which is very much used in all the sciences, is really only another form of a word we all know very well—the word *special*. We talk of the specific gravity of a thing, or of its specific heat, or the specific characters of a particular kind of animal or plant, and in all these cases the word has nearly the same meaning as special, or particular.

When we talk of the specific gravity of anything we are simply using a short expression for the amount of stuff contained in it in proportion to the space it occupies. A pound of lead takes up a great deal less room than a pound of wood; the lead has more stuff in a given space. If we remember what we read of the word mass, we may say that the lead is more massive.

This question is important, because of the great results which follow from differences in the specific gravities of things. One thing floats and another sinks. When we run hot water into a bath of cold water, the hot water floats on the top of the cold; if we run cold water in after hot, it runs as a stream at the bottom of the hot water. The warm breath from our lungs rises in the cooler air into which it is breathed. A balloon filled with hot air will float, or rise, and so on. All these facts, and thousands more, depend on the important question of specific gravity.

We are now faced again with the question of measurement. We want to be able, in some short and simple way, to say how heavy gold is compared with water, and so on. We say that one thing is heavier than another, but we do not really mean that a pound of gold is heavier than a pound of water, but that we can get

a greater weight of gold than of water into a given space. Gold has a greater specific gravity. Water is such a common substance, and so important, that we may take it as our standard.

How we may find out the space occupied by anything solid

Suppose we want to find out the specific gravity of some odd-shaped thing. We can weigh it, but we want to know more than what it weighs; we cannot tell its specific gravity until we know how much space it occupies, and if it is an odd-shaped thing this may not be at all easy to find. But with a thing of irregular shape we can find out how much space it occupies by putting it into water, and noticing how much the water rises.

Below is a table which shows us the specific gravities of some important substances as compared with the specific gravity of water, counted as 1. We shall readily understand that the things which possess a specific gravity higher than 1 will sink in water; while those—such as ice—which have a specific gravity less than 1 will float on water; but the nearer the specific gravity is to that of water, the smaller will be the mass of the floating body that will remain above the surface of the water. Here is the list:

Solids

Gold	19·3	Marble	2·8
Lead	11·4	Aluminium	2·7
Silver	10·5	Ice	0·9
Tin	7·3	Cork	0·2

Liquids

Mercury	13·59	Sea-water	1·03
Sulphuric acid	1·84	Petroleum	0·84
Milk	1·03	Alcohol	0·79

Why a balloon goes up but will not go up for ever

Gases, of course, have their own specific gravity, as solids and liquids have. In measuring the weights of gases we usually take the gas hydrogen, which is the lightest of all, as a standard and state the specific gravity of other gases by comparison with it. Till a few years ago these comparative values of the weights of gases were called their atomic weights, but owing to the discovery by Mr. Aston and others that many gases such as chlorine were mixtures of different forms of the same gas, or "isotopes" of it, the weights of gases compared with hydrogen are now called their atomic numbers. If we call the specific gravity of hydrogen 1, then that of oxygen is 16, and that of the mixture of gases we call the air is about 14·4; in other words, hydrogen is only about a fourteenth part as heavy as air.

We can now understand why a balloon filled with hydrogen will rise in the air; we can also understand that there will be a point beyond which it cannot rise, because the air becomes less dense as we pass upwards in it. In other words, the specific gravity of the air is lowered, and there comes a point when it can no longer do more than just sustain the balloon.

This is all we need say about the specific gravity of gases, but we must note a few of the facts suggested in the table of solids and liquids. We notice the great weight of various metals, and also that one of them, though liquid, ranks high in specific gravity even when compared with solids. This liquid metal is mercury. No other liquid approaches it in specific gravity.

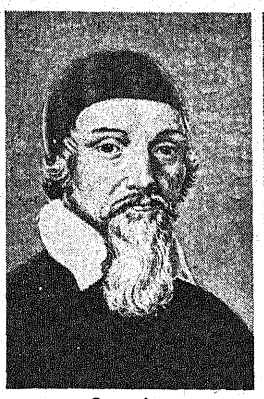
All the metals are by no means very heavy. Perhaps, after the case of ice, the most important of the specific gravities noticed here is aluminium. This is also a metal, but very much lighter than any of the metals in ordinary use. We have only to remember that aluminium is strong to see that its extreme lightness must be of great practical importance.

Why the specific gravity of the blood must be kept constant

There are some interesting points in the list of liquids. We have already referred to the case of mercury, and we note the astonishing difference between this liquid metal—the only metal which is liquid at ordinary temperatures—and other liquids.

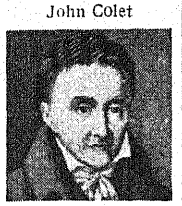
When we compare milk with blood we notice that milk, which is made by the body from blood, is slightly more watery. It is one of the most important duties of the body to keep the specific gravity of the blood at a constant level. None of the processes with which the blood is concerned can proceed properly unless its specific gravity is constant. If a human being goes without water, fluid has to be drawn into his blood-vessels from the tissues around them in order that the blood shall not become too dense. If, on the other hand, he takes a great deal of water, this is not allowed to make his blood more watery than it should be, and all the resources of his body are immediately brought into action—not in a few hours, but in a minute of two—to get rid of the excess of water as quickly as possible.

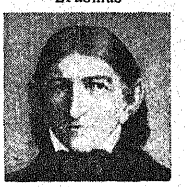
John Colet


Comenius

Joseph Lancaster

Erasmus


Pestalozzi


Froebel

THE MEN WHO GAVE US SCHOOLS

HERE we come to a group of men, belonging to all times and all places, who made some form of education the work of their lives, the men who led the way to schools. No other interest of mankind has enlisted a more varied array of enthusiasts than this subject of educating the people.

If we go back in time to the great days when European civilisation arose around the Mediterranean, and in Greece and Rome men had their minds and characters often finely moulded, we shall find one name constantly mentioned whenever education is mentioned. This was Marcus Quintilian, a son of Roman parents, who was born in Spain about the time when Jesus was crucified at Jersualem.

In that time of the early Roman Empire education was supposed to centre round oratory. Quintilian, who had been educated in Rome, went back to Spain to practise oratory, and on returning to Rome he set up a famous school. Afterwards he retired to write a book on oratory and to train two nephews of the Emperor Domitian, who were brought up to be the emperor's successors. This old book has been preserved, and through it we know exactly what this famous teacher thought about education. And we know what Quintilian himself was like, for his book reflects his character.

We know that he was entirely opposed to harshness in teaching. Pupils, he said, should be led to wish to learn, and not forced to learn. To be an orator, as Quintilian understood oratory, no man could know too much, for all information may be useful to the public speaker; and, best of all, he held that only a just and honourable man could be effective as an orator, because character would shine forth in speech. Further, one of the greatest aims of sound education was to make men just and honourable.

So the educator whom we can see nearly 2000 years ago at his work was in every way a pleasing man to know. He was earnest and industrious, respected, successful, and honoured, but wholly unspoiled, and he knew the need for being tolerant towards everyone who honestly differs from us.

The next educator who stands out in history was born in A.D. 735, six hundred years and more after Quintilian died. The world had had a rough passage through those years, brightened only by the growing influence of Christianity.

Centuries of warfare had made men forget the learning the Roman Empire

had valued, but Charlemagne, who knew well the value of scholarship, sought to spread it, though in his day the use of the sword was far better understood than the use of the pen.

Looking round for someone to take charge of his ideas, he saw that the most energetic teacher was an Englishman, the Master Scholar of the famous school attached to York Cathedral. His English name was Ealhwine, or, as we should say now, Ailwyn; but it was Latinised into Alcuin, and so he remains known to us.

THE JOURNEYS OF A YORK BOY IN SEARCH OF BOOKS

Alcuin was a York boy, educated at the cloister school, and became its best scholar, accompanying the headmaster Ethelbert on his journeys to find learned books. After Ethelbert was made Archbishop of York Alcuin became head of the school, which then was famous throughout Europe. Travelling to Rome, Alcuin met Charlemagne in Italy in 781, and went with him to set up a school at Aix-la-Chapelle in connection with the Court.

Charlemagne and his family set the fashion of valuing learning by going to school more or less, and Alcuin was honoured and enriched. But after fifteen years at the Court, of which two were spent holidaying in England and arranging a peace between Charlemagne and Offa, king of mid-England (Mercia), he asked leave to go to a quieter place than Aix-la-Chapelle. Tours was the place, and he was made its abbot. It had been the most famous school in France but had declined. Though he lived there only eight years before his death in 804, Alcuin revived its glory, for he was a born schoolmaster.

He left behind him a good deal of writing useful for teaching but not choice enough to be literature. His most interesting remains are 232 letters giving us pictures of how men lived in those days. Some of them were written to Charlemagne, some to friends in England, and some to a pupil in Salzburg.

AN ENGLISH SCHOOLMASTER OF ELEVEN HUNDRED YEARS AGO

This Englishman, who was by far the greatest schoolmaster in Europe in the year 800, was a man of great energy and force of character, rather than a scholarly recluse, and it was better so, for what the world then needed was that learning should once more be made to catch the attention of men of action.

But the beginnings of learning in Western Europe, which are associated with the name of Alcuin, did not reach their true fruition until 700 years after that great teacher's death. It was Desiderius Erasmus, a Dutchman of Rotterdam, born in 1466 and living till 1536, who was the first free, international European scholar who lived all the while for learning, won the respect of all broadminded men, used his pen incessantly as he liked, and managed to escape martyrdom. He is the finest example of the scholar triumphant.

From his boyhood Erasmus devoted himself to learning, and in order to have quiet and leisure for the study of ancient languages he became a priest in a monastic brotherhood. At 28 he escaped into the world by becoming secretary to a bishop, who allowed him to continue his studies in Paris on a small pension. An English friend also gave him a small life pension, and invited him to England, where he began the study of Greek and a close friendship with John Colet and Sir Thomas More, two of the choicest Englishmen of that stirring time.

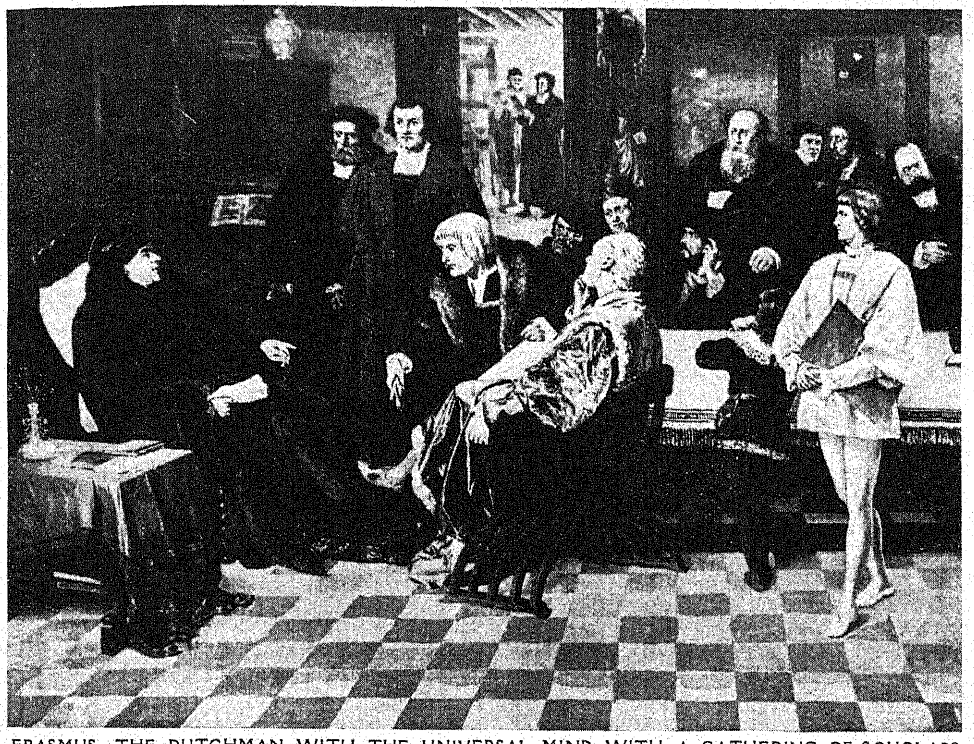
HOW ERASMUS TRAVELLED THROUGH EUROPE SPREADING KNOWLEDGE

Colet persuaded him that the best use to which he could put the learning he was diligently acquiring was to master Greek, so that he could produce a Greek edition of the New Testament, which had hitherto been available only in a Latin translation. And for fifteen years he roamed through Europe, France, Belgium, England, Italy, Holland, Germany, gathering knowledge, teaching, writing books, and gaining everywhere the reputation of a fine scholar.

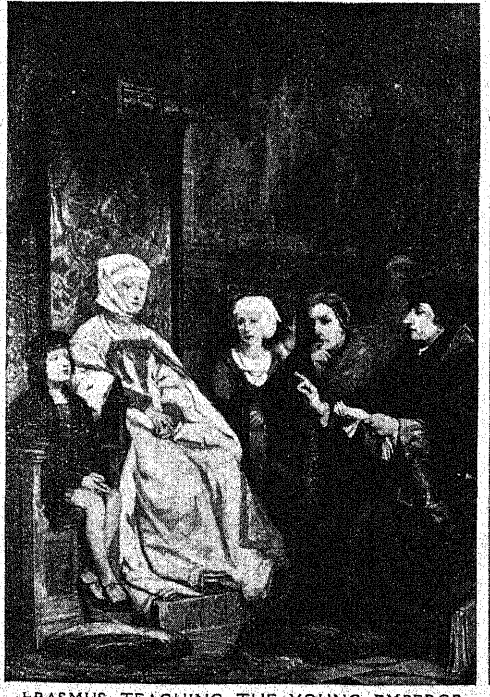
Finally he settled down at Basle editing classical books, especially the works of the early Christians, such as Jerome, Ambrose, Augustine, Chrysostom, and Origen. His reputation as a scholar was immense and universal. It was not that his scholarship was particularly exact, but his style was so free and easy that he was read where more particular writers were dull. All his life Erasmus was physically frail, but with great care he lived to his seventieth year.

The supreme feature of his character was that he had the simple, truthful, student's temperament, which seeks learning steadily and calmly, and will not be turned aside by passion or violence. He lived at a time when religious conflict was fierce, and when learning was eagerly enlisted on opposite sides, Protestant and

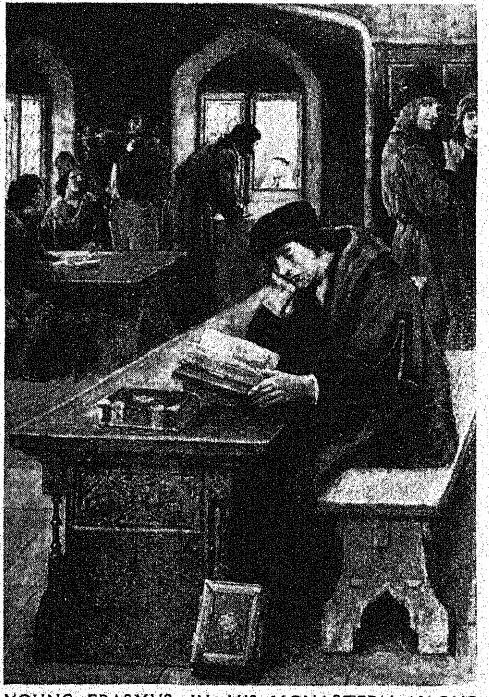
THE UNIVERSAL DUTCHMAN



ERASMUS, THE DUTCHMAN WITH THE UNIVERSAL MIND, WITH A GATHERING OF SCHOLARS AT BASLE—FROM THE PAINTING BY FELIX COGAN



ERASMUS TEACHING THE YOUNG EMPEROR CHARLES THE FIFTH



YOUNG ERASMUS IN HIS MONASTERY AMONG THE BOOKS HE LOVED

Roman Catholic. Learning itself was hated by those who feared it would unsettle men's minds by stimulating thought and overturning old beliefs; but Erasmus pursued his own course, declining to ally himself with any form of unjust violence.

THE GREAT MAN WHO WENT THROUGH LIFE SEEKING SIMPLE TRUTH

Both sides accused him of being against them because he would not declare himself for them. Meantime, he twitted them with a sly and gentle raillery for their bitterness, and admitted that each was right where they were justly right, and did not damage their cause by violence. He satisfied neither side because he would not assent to their unjust views. In short, he was a broadminded man, keenly sensitive to the follies of unjust passion, and always ready to subject it to a quiet exposure.

And because the average man is not a bitter partisan, but sees the moderate commonsense view, Erasmus always had a host of generous friends, who appreciated his unswerving steadiness, and admired the neatness of his rebukes of the hotheads. No one exposed real abuses more effectively than he, in his quiet, humorous way. He lived and died a member of the Roman Catholic Church, but it was said of him that he laid the egg which Luther hatched, though no one was a more severe critic of some of Luther's views and doings. Erasmus stands in history as the type of the earnest student and true educator, a searcher after simple truth undisturbed by the passions of partisanship.

John Colet, the English friend of Erasmus, was a notable friend of education, for he generously founded one of the most useful and distinguished of English public schools, and made its government secure against some of the evils which have been associated with educational institutions.

JOHN COLET AND THE FAMOUS SCHOOL HE FOUNDED IN LONDON

Colet's father was a wealthy man, twice lord mayor of London. After studying at Oxford he devoted himself earnestly to learning by study abroad. Then he began to lecture in Latin on the Scriptures at Oxford, with a freshness which attracted large audiences; and later, as Dean of St. Paul's, he repeated his popularity as a preacher in London.

Colet stands forth with honourable distinction as a reformer who acted up to the ideal he placed before the clergy. He resigned preferments which had been granted him in his youth, and brightened and popularised the services at St. Paul's; and when his father died and left him rich he proceeded to spend his inherited money for the public good.

To this end he founded in 1509 a school in St. Paul's Churchyard for 153 boys, and superintended the production of suitable school books. The management of the school, which was dedicated to the Child Jesus, he placed in public hands by committing it to the Mercers' Company.

As a preacher his teachings were splendidly courageous. When a convocation was assembled to suppress the Lollard heresy, he was appointed to preach; but he used the occasion to denounce corruption in the Church and to demand its reform, while the Lollards listened to him unmolested. His enemies retorted with charges of heresy against himself, and among other accusations called on him to answer for the use of English in his services—charges that were set aside as frivolous and unworthy.

THE MAN WHO WAS NEVER AFRAID TO SPEAK THE TRUTH

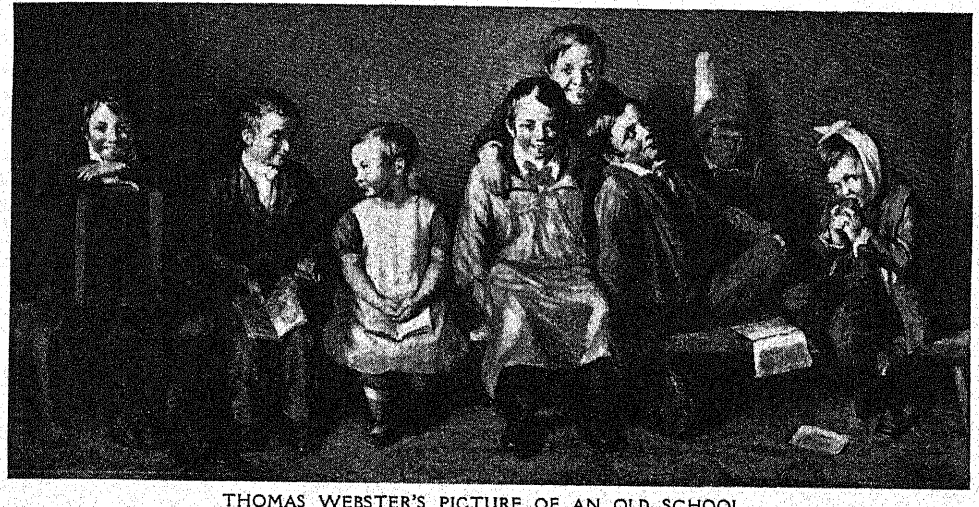
He did not hesitate to denounce Henry the Eighth for going to war, and when summoned to meet the king, he boldly defended the position he had taken up, whereupon Henry, in admiration of his frankness, made him one of his chaplains. When Wolsey was installed as Cardinal in Westminster Abbey, and Colet was the preacher, he used the occasion to give the new cardinal a much-needed warning to beware of worldly ambition.

As his health failed he busied himself with drawing up statutes for the government of St. Paul's School, providing that it should not fall under narrow and priestly management, and that the active governors under the Mercers' Company should be "married citizens"—an obvious attempt to keep the school in close touch with family life and practical business.

Colet left St. Paul's School on a firm foundation, and he left a singularly high reputation which extended over Europe. His personality evidently made a deep impression on all who knew him, and his friends were the men best worth knowing in his day. His courage and generosity were unfailing. He never shirked speaking what he felt to be the truth, though at that time safety was to be found most easily by running with the crowd. Like Erasmus, to whom he paid a yearly

SCHOOLS AS THEY USED TO BE

A DAME'S SCHOOL—BY THOMAS WEBSTER



THOMAS WEBSTER'S PICTURE OF AN OLD SCHOOL

A VILLAGE SCHOOL—BY SIR DAVID WILKIE

pension in order that he might work unfettered, he had an independent mind, and gave the world an example of the character that education should produce.

Three men stand out in the history of education for the remarkable enthusiasm with which they sought to understand the principles on which education is based. They were John Amos Komensky (the Moravian commonly called Comenius), the Swiss John Henry Pestalozzi, and Frederick Froebel, a German born in the Thuringian Forest.

Comenius lived from 1592 to 1671. He was one of the genuine heroes of his day. Born a Protestant Moravian, he travelled in Holland and England, after being educated in Germany. He was struck with the absurdity of the methods of teaching. It seemed to him, and the observation was true, that education had become merely a matter of words, and was not made practical by constant association of words with the things they represent. Thus languages were taught out of a book, whereas he contended they should be taught by the tongue, used in speech about the things around us, and enlivened by a natural interest in life. He would blend the teaching of languages with a knowledge of practical crafts and arts, and would use pictures, so that the eye might help the mind where things talked of were not present.

THE MORAVIAN PASTOR WHO MADE THE FIRST PICTURE-BOOK FOR CHILDREN

When he became a pastor and teacher he not only carried out his system but wrote a book describing it, which he called "The Gate of Tongues Unlocked." Later he used pictures and made the first picture book for children. In his books he placed sentences in the language the children knew, and opposite them the same sentences in the language to be learned—much as we do in the French Lessons in this book—so that from the first the words were seen, not in dry lists, but as actually used in conversation.

His books made such a sensation that they were reproduced in fifteen languages, and Comenius was invited both by the Government of Sweden and the Parliament of England to assist in the reform of education in those lands. When he reached England he found the country so disturbed by the approach of the Civil War in the reign of Charles Stuart that he went on to Sweden, where he was warmly welcomed and awarded a pension for his services.

This great and good man, whose sole aim was to spread knowledge and goodness in a spirit of delight, was driven from pillar to post by violent religious persecution. Chased out by his native land into Poland, he was given no rest, and finally, escaping only with his life, he saw the manuscripts containing almost the whole work of a laborious lifetime burned with all his household possessions. It was in freedom-loving Holland that he died, in Amsterdam, in 1671.

PESTALOZZI AND HIS FINE IDEAS AND BEAUTIFUL AIMS

Comenius was a bishop of the Church of the Moravian Brethren, and his name is held in reverence to this day by that community, and with something like the same feeling by all who know the story of the evolution of wise ideas of education. He should also have the gratitude of all children, for he was the first educator who tried to make learning easy for them.

John Henry Pestalozzi, the Swiss educator, served education with almost as much harassing trouble as Comenius, though with less danger. As a boy he was regarded by his schoolfellows as a kind of good-natured oddity, and a part of that feeling followed him all his life through, in spite of his goodness and enthusiasm. He had fine ideas and beautiful aims and instincts, but he was so thoroughly unbusinesslike that he was bound to fail sooner or later. Yet he passed on his enthusiasm to others, and left men who knew about him thinking of him with gratitude and loving pity.

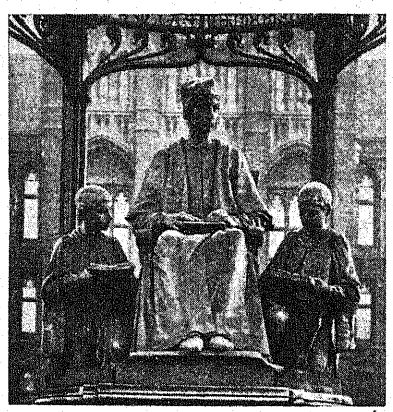
As a student he felt that the principles of education had never been fully thought out and put simply into practice, and he felt that he was the man to do it. But before that time came he had experimented in other ways of living, with the purpose of improving the lot of the poor.

THE BOOK WHICH TOLD OF THE GREAT INFLUENCE OF A GOOD WOMAN

First he thought of being a minister, and then of being a lawyer, but finally he married and became a farmer on borrowed money—and failed. At 29 he turned his farmhouse into a school, collected twenty poor children, clothed and fed and lodged them, and taught them while they worked.

It was the first industrial school. He spent his wife's small fortune on this

experiment, which attracted considerable attention, but at last ended in failure. He now began to write, and his Leonard and Gertrude, a book which showed how great an influence a good woman could wield, became widely popular and spread his fame to other lands. When the French invaded Switzerland in 1798, and many children were left homeless, he started a school and home for them at Stanz, with a success which drew public attention to it, and in 1801 he published his view of education in the book How Gertrude Teaches Her Children. His great aim was to develop all the faculties of a child through the exercise of its senses.



JOHN COLET'S STATUE OUTSIDE ST. PAUL'S SCHOOL, LONDON

Pestalozzi carried on his educational work at various centres in Switzerland, which were visited by many people from all over Europe; but he had not the power to sustain an enterprise over a long period, and when he died, at 82, it was with a sense of having partly failed in his more ambitious schemes.

His power was largely in his lovable character, his enthusiasm, and his sympathy with the children he educated. His failure was in his lack of business insight. But he succeeded in concentrating attention on education and impressing thoughtful people with a deep sense of its importance and urgency.

PESTALOZZI WITH TWO OF HIS PUPILS

One of the young men he inspired to think out new education methods was Frederick Froebel. His studies have had more definite and enduring effect than those of his master, for they were more cleverly made into a practical system.

Friedrich Wilhelm August Froebel, born in 1782, in the Thuringian Forest in Germany, was the son of a minister. His mother died when he was a baby, and the child was neglected during his early years. His lonely wanderings in the forest made him thoughtful. The man who in later life was to teach that the very early years of our lives should be passed in pleasing activities, well chosen to look like play, had quite a different early life himself. He was neglected and lonely, and was regarded as dull; but in those early years he was learning how to think, and educating himself for his life-work.

At first he was apprenticed to a forester, but later he made his way to the University of Jena and eventually became a teacher. As a private teacher of three boys, he took them to Pestalozzi's school at Yverdun in Switzerland to study his method of progressive teaching. Though he and his boys were immensely impressed by Pestalozzi's enthusiasm, he saw that the plan adopted was not well thought out, and he set himself the task of producing a more clearly defined system. Froebel was a man with a theory to work out, but he was also much more practical than Pestalozzi. Pestalozzi had taken care of the orphan children made by Napoleon's wars; Froebel started a stage farther back, and after he had begun his educational studies he became a soldier in the Prussian army, fighting to stop Napoleon's orphan-making career.

While in the army he met and enlisted the sympathy of two other young men, who joined him as educators when their soldiering was over. Out of his educative experiments Froebel gradually developed his idea of teaching quite young children on the system now known

as the Kindergarten. That was the name he used and popularised for a school he started in the Thuringian Forest of his boyhood; he called it the Garden of Children. There, like growing plants in a garden, the children were, as he said, to be "cultivated according to the laws of their own being, of God, and of Nature."

FROEBEL'S FINE PLAN FOR STARTING ON THE ROAD TO EDUCATION

His particular method was to train the children by their own activity expressed in a sort of play. So he thought out and designed a whole succession of activities which he believed would be a gradually growing education, pleasant to the child, because it involved easily doing something which the child could master and be proud of.

And now Frederick Froebel's system, more or less modified by the experience of other teachers, is in use in tens of thousands of schools for young children throughout the world. He did not plan, as he once thought he might, a whole system of education which would serve man on his continuous advance from infancy to manhood; but he did conceive a scheme for giving the child an easy start on the unending road of education. Still, it is a question whether Froebel would ever have done the work by which his name is known throughout the educated world if he had been brought up in childhood on his own system.

The educators we have looked at, Comenius, Pestalozzi, and Froebel, aimed at founding systems of teaching which would last because they were based on a search for firm principles. Now we will glance at three or four who started methods useful in their day, and led to the formation of Societies for carrying them on.

THE NEW SYSTEM TWO MEN STARTED UNKNOWN TO ONE ANOTHER

Joseph Lancaster and Andrew Bell were two such men. They began separately what was called the Monitorial System. It set children to teach children. Andrew Bell began it when he was an army chaplain in India. He observed how Indian children teach each other in their open-air schools, and as he had charge of a military orphan school in Madras, and could not have grown-up teachers there, he adopted the plan of teaching certain things to the older children in the morning and setting them to teach the same things to the younger children in the afternoon while the knowledge he had imparted was fresh in their minds.

Meantime, in the south of London, Joseph Lancaster had begun to use the same system, which he had thought of independently. He was the son of a Chelsea pensioner, and became a teacher at sixteen. He loved teaching, for which he had a natural gift. His first school was collected in his father's house. There was a great demand for education, and Lancaster succeeded so well that he soon had a large school taught by himself and the older children in the Borough Road, Southwark.

His success was so conspicuous that some well-to-do members of the Society of Friends gathered round him, for he was a Friend himself, and established a Society which they called The British and Foreign School Society, for establishing similar schools all over the country. To provide teachers for these schools a training college for teachers was started, and as the supply of teachers grew new schools were built in many towns. Sometimes they were called Lancaster Schools and sometimes British Schools, and they continued in existence until the country as a whole made itself responsible for education, and Board Schools (now called Council Schools) were built. Then the British Schools handed over their work to the country.

THE GREAT FORTUNE LEFT BY ANDREW BELL TO HELP ON EDUCATION

The later lives of Andrew Bell and Joseph Lancaster were very different. Bell, who became very rich through holding a number of clerical offices—he was at one time a clergyman with eight appointments—ended his life as a Prebendary of Westminster, and was buried in the Abbey. He left £120,000 for education. Lancaster, like Pestalozzi and Froebel, could not manage money. Though he was a fine teacher and had a wide influence, he was always in debt, and at last he wore out the generosity of his friends, and finally went to America. He never returned. In America he made a sensation by his energy and force of character, but again his weakness in managing his own life reappeared, and he died a poor man, killed in a street accident in 1838.

Since these men, the pioneers of methods of education which have now largely passed away, the whole nation has realised that education is the nation's work; but these men sowed the seed, and we who reap the harvest should remember them.

The Great Stories of the World That Will Be Told for Ever

THE HUNDRED THOUSAND MONKEYS

THIS is a story that begins on the banks of the River Ganges in India. There are villages on the banks of the Ganges, and in one of them a little boy called Singh lived in a hut with his father and mother. It was his business to make curry for his parents while they worked.

But one day Singh found it hot and also dull in the hut, where he was busy with the curry. The sun was hotter still outside, but when he went to the door and looked out Singh saw cool shadows under the trees, cooler than the dark of the hut because of the breeze that was lifting the big leaves and letting them flap softly back again. So Singh went and lay in the shadow of a tree.

Presently his father and mother came back hungry for their curry, and when they found that Singh had forgotten all about it they beat him till he was very sore, and then made curry for themselves. So Singh ran away into the forest.

There were parrots in the forest, green and red and yellow, and they shrieked loudly as they flew from the palm to the banyan tree, and from the acacia to the feathery bamboo. There were snakes, spotted and shiny ones, brown and yellow ones, black ones, and pale bright green ones, and they hissed and slid away into the long grass. There were bigger things too.

Singh heard the bamboos crack and the branches break, and saw the long grass wave where the big beasts were stepping. He also heard them roar. He thought they would probably eat him, but he did not mind because his body was sore. And then a monkey dropped to the ground in front of him. The monkey had been hanging by one hand from the bough of a tree watching Singh for some time.

"What is the matter with you?" asked the monkey.

"I have been beaten," said Singh.

"No, no, that is not what is the matter with you," said the monkey.

"What is it, then?" said Singh.

"Why, this. Your beating is over, and your skin is already not so sore as it was. The matter with you is that you want to tell a hundred thousand people about it, and there's no one to listen to you."

"Yes," sobbed Singh, "that is quite true. They are eating curry in the village, and if I try to tell them about it they will beat me again and make me more sore."

"Come with me," said the monkey, "and you shall tell a hundred thousand people, and they shall weep for your sore body, and you will feel better."

He caught Singh with his skinny hand, and ran through the undergrowth of the forest. Singh ran with him for a long time.

He was far too busy dodging branches to notice how they went, so that he was not very surprised when the trees came to an end, and the forest opened into an old white city lying in marble ruins. There were fallen temples and wonderful broken pavements. And everything shone dead white in the hot, glaring Indian sunshine.

There were no people in the city, but as for monkeys—there seemed to be more than Singh believed there were in all the forests of the world.

"Tell these people," said the monkey who had brought him. And when the other monkeys crowded up this monkey looked laughingly at Singh, and went away and sat alone on the marble steps of what had long ago been a temple.

"I have been beaten and my back is sore," began Singh.

"Aah!" said a hundred thousand apes, their eyes fixed steadily on his face.

"Because I lay in the sun and neglected the curry while they were working."

"Aah!" said the hundred thousand apes, all looking very much interested.

"My name is Singh, and I am very miserable. The people of the village have cast me out with a sore skin and no curry."

"Aah!" said the apes.

"A sore skin and no curry," said Singh again, for he could not think of anything else to say.

"Aah!" said the apes, as if these were only the beginnings of his troubles.

Singh could not think of anything else, and he was very unhappy because he wanted to complain.

"Aah!" said the apes.

"A sore skin," said Singh miserably.

"Aah!" said the apes impatiently. He heard some of them say, "Is that all?"

"No curry," he said once more; and then, getting up quickly, he looked for the monkey who had brought him, and saw him sitting on the temple steps.

"Please take me back," he said. "I am not miserable enough for these people."

And the monkey said, "I thought so," and laughed, and took him back. But he was not beaten again. His mother was glad to see him, and gave him hot curry and put him to bed.

Now, that is the best of all ways to be comforted. If ever you feel miserable go and tell it to a hundred thousand serious-faced monkeys, and you will find that you are not miserable enough.

HOW MUSIC MADE PEACE

MERCURY, walking in the fields, came upon a tortoise, and from the bush came a voice saying: "Here is Chelone, the nymph changed into a tortoise because she was late at Jupiter's wedding."

Mercury, the youngest of Jupiter's sons, took up the little creature, whose grinning face and ugly paws made him exclaim: "Poor, pretty nymph! Nobody will ever invite you again! Yet give me your fine shell and never shall there be feasts without you."

Mercury filled the shell with stems of reeds and slender strings, which sweetly resounded at the slightest touch. The lyre was invented, the melodious lyre that was to celebrate weddings and victories all down the ages of time.

Mercury ran with his new toy through the meadows, gathering flowers; but most of all he longed for the herds Apollo tended for King Admetus. Apollo, absorbed with his flute, looked neither to the right nor to the left while Mercury stole quietly up the hill with fifty heifers out of the herd.

Apollo, laying down his flute, missed his stolen herd, and while looking for it, met a peasant. "If it is not a dream," said he, "I have seen a child pass by leading fifty heifers up the hill." Apollo hastened up the hill and found the heifers in the cave; and he would have hurled the bold Mercury to the bottomless abyss but that, as he stretched out his arm, his hand struck the lyre that Mercury was hiding.

At the sight of a new musical instrument Apollo forgot everything else. "What is this lovely music?" he cried in his delight. "It looks like something that would be worth fifty heifers." Emboldened, Mercury handed Apollo the lyre, saying: "Take it; a shepherd's pipe will do for me."

So music was a peacemaker for the first time in the world. Apollo and Mercury were reconciled and became great friends. As they moved down the hill two serpents were fighting on the skirt of a wood. Apollo threw his wand between them, and the snakes entwined themselves around it. Mercury, amazed, seized the marvellous rod and took it as his wand, the Caduceus, the emblem of peace; and later he added wings to it, and to his hat and sandals. Now he grew up to be a messenger of the gods, for he could fly swifter than the wind.

A DOCTOR IN SPITE OF HIMSELF

This is one of the many amusing stories told by the great French writer Molière, who was famous in the generation that followed Shakespeare.

MARTINE had been beaten again by her husband. Sganarelle the woodcutter was treating her worse and worse, and she resolved to be avenged.

Her opportunity was at hand, for soon two valets passed her door complaining of their plight. They must find a good doctor. "Our master's daughter is ill," they explained. "Many physicians have failed to cure her, and we now look for one of those quacks who have secrets of their own and work wonders at times."

"Ah! Thank Heaven!" thought Martine, and she told them her husband was just the man they wanted.

"Take it from me," she said, "no more than three weeks ago he again worked wonders. A young child fell from the church tower and broke his head, his arms, and his legs. Sganarelle had hardly been taken to the spot, had hardly rubbed the child's body all over with a balm of his making, when the boy stood on his feet and ran off again to play."

Where was this wonderful man, the men inquired, and Martine pointed to the forest.

"There in the forest he is enjoying himself cutting logs."

"A physician chopping wood?"

"Ah! he is not like the others, you see. Sometimes he will play a mad freak, dressing up as a peasant, or flying from his patients. Just now his hobby is denying that he is a doctor. He will let you beat the life out of him before he acknowledges his science, but if you do use the stick he will do marvels."

"A curious thing," said one of the men, "that all great men have some caprice, some bit of foolishness, mixed up with all their knowledge. I have noticed it often."

They walked toward the forest, and came upon their man.

"Are you Sganarelle?" they asked.

"Yes and no. It depends what you want with him."

"No harm for sure."

"In that case I am Sganarelle. What's your business?"

"Sir, we have heard of your cleverness, and we need you."

"You are right there. I am the best hand at making faggots."

"What a pity, sir, that a man like you, a scholar, a famous doctor, should wish to disguise himself in such a way!"

"He is mad!" Sganarelle thought. "A doctor?" he exclaimed; "I have never been a doctor!"

"She was right," said the valets to each other; "we shall have to use the stick!" And this they did, after a long dispute, till they made the exhausted woodcutter admit that he was a physician and that he would follow them anywhere.

In the garb of a professional man the grave-looking Sganarelle came at last very much to enjoy the joke. "They want to make a fool of me," he thought, "but never mind, let us pull their legs and make the most of it," for Sganarelle was cunning and grasping.

Now he was introduced to Géronte, a rich citizen whose daughter Lucinda had lost her speech. Géronte had consulted many doctors, but none could cure her; time was flying, and his friend, the wealthy Horace, might not want to marry Lucinda if she were dumb much longer. The old man was very anxious.

"Here is my daughter awaiting you," he explained to Sganarelle.

"Very well; what is the matter with you, my young lady?"

In vain poor Lucinda tried to speak, muttering strange syllables.

"Whatever is this language? I don't understand a word!" said our doctor.

"Sir, that is her trouble," Géronte explained. "She has suddenly become dumb, and the worst of it is that it delays the marriage I have settled for her. Can you tell us what is the cause of it?"

"Quite easily; speech has left her."

"Yes, but how is it?"

"All the scholars will tell you that it is the action of the tongue that has stopped. Aristotle has written a lot on the subject. Ah! he was a great man. An inch or so taller than I. Do you understand Latin? There is a Latin word exactly explaining the case. You do not? It is a pity. Well, you know that the action of the tongue is governed by certain fluids."

Finding that Géronte knew no more than he knew himself, Sganarelle dazed the father with words.

"No man could reason better," observed Géronte; "but one thing bothers me: you place the liver on the left and the heart on the right. I have never heard of this before."

"It was the reverse in olden times," Sganarelle boldly explained. "Now everything is changed!"

"Oh, I beg your pardon, sir; I am not up-to-date, you see. Then what will you prescribe for my daughter?"

"Send her to bed and let her take bread soaked in wine. Parrots are fed on nothing else, and they speak nicely."

Géronte, enchanted with the idea, insisted on the woodman accepting a large sum of money and promising to come again.

And now Sganarelle was to have another visitor, Léandre, a young man of proud birth. Léandre was not in the least sick, but he loved Lucinda as much as Lucinda loved him, and he wanted to marry her in spite of her father, who desired a richer suitor for her. Léandre had heard of the visit of Sganarelle, and what better could he do than tell him everything concerning Lucinda?

However gifted our woodman was, he could hardly have guessed the truth, for this is what he heard from Léandre.

"You must know, sir," said the lover, "that the illness you are trying to cure is a pretended illness. The true cause of it is the dislike of Lucinda for the man her father wants her to marry. Her dumbness is all she could think of to delay the wedding-day and remain true to me."

"Then what can I do for you?" said the astonished Sganarelle.

"Help me to see her," said Léandre.

"Then you will dress up as a doctor, and call there with me as my assistant."

"Oh, but I know nothing of medicine!"

"Nor do I," said Sganarelle. "I am not a physician; they made me so in spite of my kicking. I don't know how they got it into their heads, but I had to give way and go with them. However, you could never imagine how the news spread. It is comical indeed. People crowd to see me, and if they go on doing so I may stick to the job and leave my old one. After all, medicine is a good business. If a shoemaker spoils a piece of leather he must take up another and lose, but for us doctors, when we make a mistake we lay it at the door of the victim who dies; and the dead tell no tales."

The delighted Léandre put on a long coat and a doctor's wig, and to Lucinda's house they went. While Sganarelle kept the father interested in one part of the room Léandre was prevailing on the daughter to speak.

Suddenly Lucinda began to speak! Géronte warmly congratulated the two physicians. Lucinda could talk again, and now she would marry Horace.

Yes, Lucinda could talk again, and she did talk, and on, and on, bursting forth with all the words she had stored in her head for days. But what she said was not what pleased Géronte, for she said that she would never marry her father's friend, that nothing would make her change her mind, that she would rather be a nun; and at the end she said so much, and with such passion, that Géronte turned imploringly to Sganarelle, and said: "Sir, could you not make her dumb again?"

"Impossible, sir," Sganarelle answered; "all I can do is to make you deaf!"

It happened that Léandre inherited a rich fortune, so that Géronte was pleased to have him for a son, and he and Lucinda were married and were happy.

As for Sganarelle, he had proved himself so clever that his wife was delighted to have him back; and, being left alone whenever he was bad tempered, he had no opportunity to beat her any more.

So that all was well, and the adventure that was to have been fatal to everybody concerned made everybody happier.

THE KING WHO WAS LOVED

CROESUS, the rich king, was captured by Cyrus, King of Persia, and one day, after seeing the liberality of Cyrus, he said: "Surely if you give away like this you must become very poor, whereas if you kept your wealth you would soon have great riches."

"How much do you suppose I should have now," asked Cyrus, "if during all my reign I had kept everything and given nothing?"

Croesus named an immense sum.

"Well," said Cyrus, "I will send round to my friends and subjects and tell them that I need money for some object, and you shall see the result."

After the messenger of Cyrus had carried out his orders the king took Croesus to see the gifts that had been sent. Croesus was amazed, for there stood a great heap of gold, of far greater value than the sum he had named.

"If I had hoarded and guarded my wealth," said Cyrus, "I should be envied and hated by my people; whereas now I am loved and trusted by them, and can in a moment have more gold than ever I could have saved in many years."

THE FACE NO MAN COULD LOOK ON

An old fisherman was fishing one evening on the Greek island of Seriphus when he saw a strange sight. A chest came floating in on the waves, and in the chest sat a beautiful lady, nursing a pretty little boy.

"Save me and help me!" cried the lady. "I am Danae, the daughter of the King of Argos, and the little boy is my son Perseus. My father has driven us forth like this because of an evil prophecy that Perseus should bring about his death."

The kind old fisherman took Danae and Perseus to his house, and there they stayed till Perseus was old enough to earn his own living. He then became a sailor, and grew strong and hardy. At the age of fifteen he was a very remarkable lad. He stood a head taller than any man on the island, and he was the champion in every kind of warlike sport. And he had need to be, for, on returning from a voyage, he found that his mother was gone.

"The King of Seriphus has fallen madly in love with her," said the old fisherman, "and, as she will not marry him, he has imprisoned her."

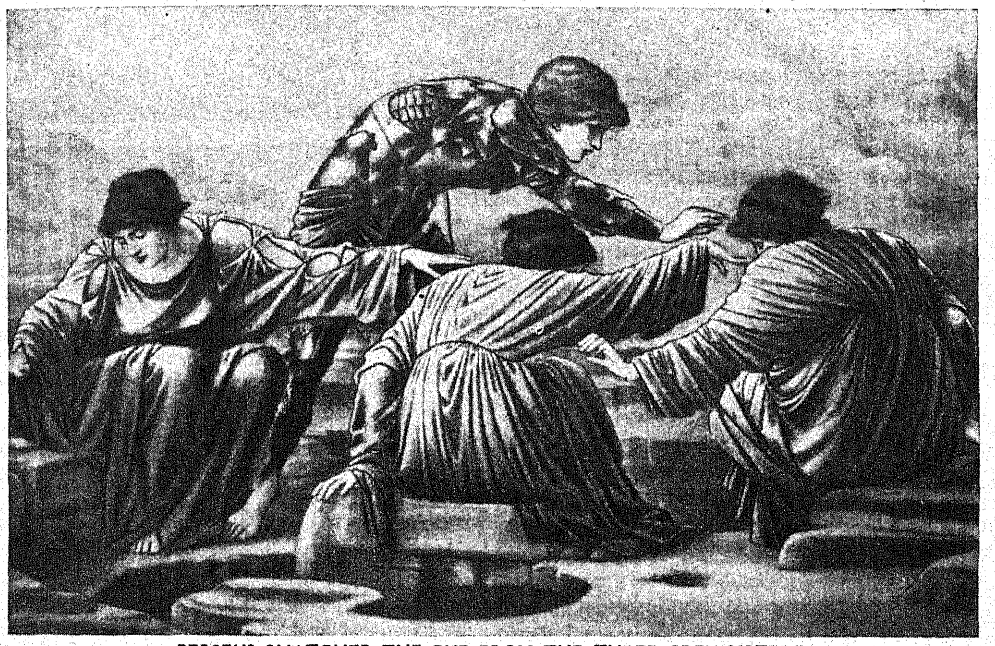
Perseus strode into the palace, his eyes blazing with anger, and there he discovered his mother, and set her free. For he looked so terrible that no man dared oppose him. He was about to kill the king when his mother said: "Perseus, we are strangers in this place; if you harm the king all the people will attack you."

So Perseus spared the king, and the king then laid a plot to get rid of the brave boy and force the mother to become his wife. He prepared a great feast, and invited all his lords; and he also invited Perseus. Now, it was a custom on these occasions for every guest to bring the king some costly gift; but, as Perseus was a poor sailor lad, he came to the feast with nothing to give, and when the time came to present the gifts all the lords scoffed at him. But Perseus then remembered a strange vision that he had had. Athene, the Spirit of Wisdom, had come to him in a dream, and she had told him to go forth and slay her enemy the Gorgon, and she had promised to help him. So when the lords scoffed he cried:

"Wait, and I will bring the king such a gift as no man has ever seen. I will bring him the head of the Gorgon."

"Go, then," said the king, "and do not return till you bring it."

He thought that he had sent Perseus to a certain death, for the Gorgon was a terrible woman, with a face which no mortal could gaze on without turning into stone. But Perseus went down to the cliff by the sea and waited, and Athene again appeared to him, and with her came another spirit, who was called Mercury. Athene



PERSEUS SNATCHED THE EYE FROM THE THREE GREY SISTERS

gave Perseus her great polished shield, and Mercury gave him his magic sandals and his enchanted sword.

" My enemy the Gorgon," said Athene, " dwells in the cold lands where the north wind blows. Go there and attack her. But beware of looking at her face. Watch the reflection of it in my polished shield, and look away when you strike her. Now put on the sandals and leap off the cliff."

Perseus did so, and, instead of falling into the sea, he began to travel with great swiftness along the air on the magic sandals. On and on he went, until he came to the desolate place where the three Grey Sisters dwelt, the three sisters with one eye between them, which they used in turn to see what was happening on the Earth. Snatching the strange eye from them, Perseus held it as hostage for the information he wanted, refusing to restore it till the three Grey Sisters told him the way to the Garden of the Hesperides.

Perseus turned southward, and came to the Sunset Land, where the Hesperides lived. And he saw the young and beautiful Hesperides singing and dancing in their garden around an enchanted tree laden with golden fruit. One of these lively nymphs took pity on the lad, and said to him :

" The Gorgon will turn you into stone if she sees you. You must wear the Hat of Darkness, and then you will be invisible."

She went down into the Underworld, and brought Perseus the Hat of Darkness ; and Perseus put it on, and became invisible. He then travelled on the magic sandals to the cold land where the north wind blows from, and he held up the shield, and looked at it. And he saw the Gorgon sleeping beside her sisters on an island.

Her face was pale and beautiful, but instead of hair she had serpents growing out of her head. The serpents could not see Perseus because he wore the Hat of Darkness, and he came close up to the Gorgon, looking all the time at the reflection in the polished shield : and then, with one stroke of the sword, he cut off her head, and, still without looking at it, he wrapped it up in a goatskin. Then he mounted a winged horse named Pegasus, which sprang from her blood, and travelled to the land of Ethiopia.

Seeing a white statue standing under a black rock by the shore, he descended, and found that it was a beautiful girl chained there, and the girl cried :

" Do not set me free. I am Andromeda, daughter of the Queen of Ethiopia, and I am chained here as a sacrifice. For my mother boasted that I was fairer than the Queen of the Sea, and the Queen of the Sea has sent a sea-beast to ravage Ethiopia. Only by offering me as a sacrifice can the land be saved."

But when the monster appeared Perseus unveiled the head of the Gorgon, and the monster saw it, and turned into a stone. Perseus then married Andromeda, and sailed with her to the island of Seriphus.

" Ha, you braggart castaway ! " cried the king. " So you find it easier to make a promise than to fulfil it ? "

Perseus showed the head of the Gorgon, and at the sight of it the king and all his scoffing lords were turned into stone. Perseus then made the kind old fisherman King of Seriphus, and with his mother and his wife sailed to Argos.

And there, after causing the death of his grandfather while playing quoits, as it had been prophesied, he settled down with Andromeda and his mother, and the people made him king of the land.

COMMENT UN SULTAN TROUVA UN HONNÊTE HOMME

This is a French translation of the story told in English on page 36

UN sultan voulait trouver un honnête homme pour percevoir les taxes de son royaume, et un sage conseiller l'incita à publier son intention et à inviter tous les candidats au palais.

" Je vous montrerai l'honnête fonctionnaire quand vous leur aurez demandé à tous de danser," dit-il.

Les candidats arrivèrent, et furent invités à se rendre près du sultan, l'un après l'autre, par un couloir sombre et désert. Aussitôt qu'il furent assemblés devant le trône, le sultan déclara : " Messieurs, je désire vivement vous voir danser."

Mais tous refusèrent, rougissant, excepté l'un d'eux, qui dansa bien et gaiement.

" Celui-ci est l'honnête homme," dit le philosophe, en montrant le danseur.

Car le sage conseiller avait placé des sacs d'or dans le couloir sombre, et tous les malhonnêtes en avaient rempli leurs poches en se rendant auprès du sultan. S'ils avaient dansé leurs poches auraient resonné comme des tirelires, et c'est pourquoi ils refusèrent.

STORIES TOLD TO KAFFIR CHILDREN

UNCAMA'S ADVENTURE

UNCAMA was a bold hunter, and, finding that a strange animal came every night to his garden and rooted up his plants, he lay in wait for it and pursued it. The strange animal ran down a great hole by the side of a river, and Uncama followed it, and entered a wonderful country underneath the Earth.

The strange animal then disappeared, but Uncama went on until he came to a village in which a tribe of savage dwarfs lived. The dwarfs were very fierce, and gathered together to make an attack; but Uncama got away, and climbed up the hole back to his own country.

But when he returned to his people no one recognised him.

"Where is the wife of Uncama?" he said. "I have a message for her."

"Uncama? Uncama?" exclaimed the people. "Wasn't that the man who disappeared many years ago? His wife is now a very old woman."

So, indeed, she was; and for some time she did not know Uncama. The hunter was now a younger man than even the baby son whom he had left in his wife's arms when he followed the animal down the hole into the underground country.

THE JACKAL AND THE LION

ONE very hot summer all the streams dried up, and the animals had no water to drink. After searching for some days they found a spring, but hardly any water came from it, as the hole had not been dug deep enough.

"Let us all set to work and dig out a big hole," said the lion.

The jackal was lazy, and refused to work with the other animals. So when they had dug the spring out they said:

"We must now guard our spring, and keep the jackal from drinking any of our water as he refused to work."

"I'll watch over it," roared the lion, "and if I set eyes on that rascal of a jackal I'll eat him up."

Some time afterward the jackal came bounding up gaily to the spring. But instead of trying to drink the water he sat down near the lion and pulled from a bag a luscious piece of honeycomb.

"You see, Mr. Lion," he said, as he munched the honeycomb, "I am not at all thirsty. This honey is really lovely."

"Just give me a taste," said the lion. And the jackal gave him a very little bit.

"Oh, it is very good!" said the lion. "Do give me some more, my friend."

"To get the full flavour," said the jackal, "you must lie on your back and let me pour it down your throat."

The lion at once fell on his back, and began to wave his great shaggy paws in delight at the fine feast in store for him.

"I am afraid you will hurt me with those great paws of yours," said the jackal. "Let me tie them up, and then I can lean over you and pour the honey down safely."

The lion allowed him to tie up his four paws with pieces of strong rope. But instead of giving him any of the honey the jackal trotted to the spring and drank his fill of the water.

As he was merrily running off home the lion roared out:

"Mr. Jackal, dear Mr. Jackal, don't leave me lying here helpless with my feet tied up! All the other animals will laugh at me, and I shall lose my authority over them. On the honour of a lion, I will let you have as much water as you like if only you will set me free."

The jackal reflected for a few minutes. If he did not unbind the lion someone else would, and the king of beasts would then never rest until he had avenged himself. It was better to trust in his honour. So the jackal set the lion free and gave him some of his honey, and the lion ordered all the other animals to allow the jackal always to drink at the new spring which had been made.

THE ROPE THAT BROKE

AFTER the jackal and the lion became friends they often used to go out hunting together. But, fearing that their friendship would not last very long, the jackal left his den and made a house for his wife and children on the top of a very high rock. This he used to climb up by means of a long rope, which his wife let down for him when he arrived from his travels and gave the necessary signal.

The lion, of course, always took a lion's share of everything that he and the jackal captured. This sometimes made the jackal angry, especially when he discovered the game and tracked it down, and the lion merely came and killed it. And the lion got so lazy that he would not even take the trouble to carry home his share. "Take all the best parts to my lair," he used to say," and then you can

come back and have the worst parts for yourself."

The jackal resolved to pay the lion out for this, and one day, when they had brought down a splendid lot of game, the jackal took all of it home to his own wife. The next morning the angry lion came to the foot of the rock, and said:

"Just throw down your rope. I want to come up and have a friendly talk."

The jackal's wife and children were terribly frightened when they heard the lion's voice, and they all began to tremble.

But the cunning jackal had thought out what he would do. Calling out to the lion that he would lower a rope, he let down a piece of weak cord, which broke in the middle just as the lion had got half-way up. Down fell the lion and was killed on the rocks.

JEANNE PARELLE

THERE was once a peasant in France who had eight little children. He found it hard to provide food for them, and so he sent his daughter Jeanne out into the world to earn her living.

Jeanne had better food in the house of her mistress, and there was always a warm fire in winter. But she loved the hut where her brothers and sisters played, and she longed to be home again.

One day there came a message that her mother had been stricken with paralysis, and Jeanne went home to take care of her. From that day she never left her.

We can imagine how her loving heart ached to see the dear mother who had worked her fingers to the bone for her children lying helpless and hopeless on her bed. Jeanne comforted her, and set herself to act as mother to the rest of the family. She rose early, got the breakfast, tidied the cottage, and then went to earn a few pence in the hayfields. She was never too tired to sit by her mother's side, amusing her with stories.

But worse was to happen. The old father became very ill, and in his terrible fits the poor man would bite Jeanne as she attended to him, until her hands were sorely wounded. Yet she did the work of the house, waited on her mother, and hid her pain and the sight of her wounds from both her parents.

For ten years she looked after her father and mother, and when her father died she had to earn the family's bread.

She learned to weave silk, and still made hay in the fields and supported her mother with loving cheerfulness. One day the mother said she would like to go to church, and Jeanne promised that she should go. How do you think she managed to get her paralysed mother to church? She supported her with one arm, and under the other she carried an armchair. When the mother had gone three steps Jeanne put down the chair and seated her mother in it. It took them three-quarters of an hour to reach the church, which was only five minutes' walk from their home.

People told Jeanne that her mother ought to go into the workhouse.

"It breaks my heart to hear you say so," Jeanne answered

"But, Jeanne, she would be well looked after."

"I know she would be taken care of," Jeanne would say, "but—tenderness: who would give her that?"

It was a saying of Jeanne's: "God leaves us our parents that we may take care of them."

She lived on the cheapest bread and a few turnips, and gave her mother the bread and meat and milk that the village allowed them. If anyone gave her warm clothing to keep her from catching cold in the fields Jeanne put it on her mother, and altered it for her.

"Bless those who have warmed my mother!" she would say.

Her greatest sorrow came when her mother grew deaf. The mother's affliction rested heavily on the girl; it seemed as if the old mother grew young and lovely while the hard-working daughter grew old and worn. The cottage was always like a new pin, bright and beautiful and cheerful. People said that Jeanne had become the mother and the mother had become her child, and Jeanne would laugh and clap her hands at this.

After twenty-five years Jeanne's story reached the ears of a good and rich man who had set aside a large sum of money to reward the simple courage of the poor. She won his prize for heroism. All the world heard her story, and her name, Jeanne Parelle, became a glory throughout France.

A French translation of this story appears on another page. See Index.

THE CHILD WHO CAME BY NIGHT

TWILIGHT was falling on the dense, swampy forest around Verulam, and, seeing this, the tired Roman legionaries formed a camp for the night in a deserted British hill-fort. As they were busy roasting some of the cattle captured after the great battle at Walton-on-Thames the scouting party returned, headed by Conan, the young British chief from Colchester, who had thrown in his lot with the invaders. Conan's eyes flashed with anger when he saw the Romans were preparing to remain in the fort for the night.

"He will escape me! He will escape me!" he exclaimed. "What slow, sleepy gluttons these Romans are!"

He spoke wildly in his native language. The soldiers of Rome looked at the handsome young barbarian with amused eyes. Had they known that he was calling them names they might have ill-treated him, for they were proud, fierce men, these warlike Roman farmers who had conquered Gaul and were now driving the tribes of Britain before them.

"What a triumph we shall be able to give Caius Julius Caesar on returning with him to Rome!" said one of them as he gazed at Conan. "When we capture Caswallon we'll have a procession of a hundred of these British chiefs, and won't slaves be cheap!"

"No more wars for me then," said another legionary. "I shall buy a British girl to wait on my wife and about ten sturdy Britons to work my farm. I'll soon whip them into shape, and then I shall live like a patrician."

Conan understood Latin, and he stared at the speakers in silent bitterness. Then, turning on his heel, he strode toward a man in bright armour who was pacing round the camp and carefully studying the position of the earthworks.

"Caesar," said the young chief, "don't let your men stand idling here! If you do not push on and attack Caswallon at once he will take to the woods, and you will never get him. It is only an hour's march now to his village."

"How you Britons love one another!" said the great Roman captain. And his cold, thoughtful eyes lighted up with a strange, ironic smile. Then, changing his tone, he caught the young British chief by the shoulder, and said in a stern voice: "You mad, foolish young savage! What would happen to my army if Caswallon, your father-in-law, caught us marching in single file in these woods at night? By Jupiter, if I thought you meant to betray me as you betrayed him at Walton I would——"

CONAN URGES CAESAR NOT TO DELAY

He stopped, for there came a look into Conan's face that made even the conqueror of the world pause. It was not often that Julius Caesar was fretful and ill-tempered, but a ten hours' march through steaming swamp and brambly forest had wearied him, and he was beginning to see clearly that he could not conquer Britain as easily as he had conquered Gaul.

Conan strode moodily down the hill and entered the wood stretching away in the darkness to Verulam, as the Hertford town of St. Albans was then called. He hated the Romans, for he knew that they were his real enemies; he hated himself, for he knew that he was a traitor to his country; but above everything else he hated Caswallon, the chief of Verulam and the leader of the united tribes of Britain.

Seven years before Caswallon had given his daughter in marriage to Conan. Four years after that Conan's father, the King of Colchester, had made war on Caswallon. Caswallon stormed Colchester, and among the captives he made were his own daughter and the child whom she had borne to Conan. In vain had the young chieftain begged that his wife and baby should be returned to him.

"They are my child and grandchild," Caswallon had said, "and they shall live with me until your father acknowledges me as his overlord."

This was a very high-handed way of bringing about a lasting peace, and it did not succeed. Maddened by the wrong done to him, Conan went over to the invading Romans, and induced his father to make an alliance with Caesar.

"I will lead your army safely to Caswallon's stronghold," he said to the great conqueror, "if, instead of taking him in triumph to Rome, you will leave him in my hands." And to this Caesar had agreed.

In spite of the insulting way in which the Roman had now spoken to him Conan was still bent on avenging himself on his father-in-law. For some time he roamed in the dark forest, brooding over his injuries. Then, lighting on a path, he moved warily on toward Verulam to see if the way was clear for the advance of the Roman army next morning.

Drawing his tartan closely round him, so that it should not catch in the brushwood, he went forward as softly as a Red Indian. Though born by the sea-shore, he had as much knowledge of woodcraft as the people who dwelt in the inland forests. Even in the darkness he could tell, from the behaviour of the wild creatures around him, if any man besides himself was about. Time after time he stopped for a minute to listen, and, hearing nothing, crept onwards to Verulam. He was about two miles from the British stronghold when a strange sound startled him. He put his ear to the ground.

"It is a child crying," he said, as he arose. "Lost, no doubt. If it comes from Verulam it could tell me more than I could find out myself."

Very cautiously he made his way to the spot. It was too dark to see clearly, but he could just distinguish a tiny figure sitting beneath a tree.

"What is the matter, little one?" he asked gently.

"I came out to look for my father, and I can't find the path back to Verulam."

"And who is your father?" inquired the young chief.

"Conan of Colchester," replied the child.

It was a rash thing to do in Caswallon's country, but Conan sat down with the child on his knee, and took out flint and tinder and made a torch of dry wood, and stared at the waif. It was a girl, fair-haired and blue-eyed, and charming to look upon. She was certainly the child of a great chief, for, instead of being clad in skins, she wore a gown of fine red linen, and round her neck was a necklace of precious amber.

"Why do you want to find your father, Mora?" exclaimed Conan, now strangely moved, for he saw that she was indeed his own daughter who had been taken away from him two years before.

Mora recognised him in turn. Throwing her little arms about his neck, she snuggled up to him, half crying and half laughing, and said: "Oh, Daddie, Daddie! I am glad I found you. Mummie is crying because they want to hurt you."

"Who want to hurt me?" said Conan.

"Grandfather and his chiefs," said Mora. "But Mummie won't let them, and I won't let them. Why, Daddie, you are crying too!"

The torch Conan had lighted went out, and he sat in the dark, wild forest hugging his child in his arms, while his tears fell upon her head. Now that he knew that his wife had not forgotten him and that his child, too, still loved and remembered him his bitter feelings against his father-in-law disappeared. He was ashamed of himself, and his one thought was to save his country and repair the harm that he had done by helping the invaders. Taking his daughter in his arms, he entered Verulam before daybreak, and faced the terrible anger of his father-in-law.

"Kill me if you like!" cried Conan. "I deserve it. But hear me first. You must take to the woods. You don't know how strong the Roman is, but I do. He will storm Verulam in an hour, but he cannot fight in the forest."

Caswallon would not pay any attention to his son-in-law's words.

"I will beat off Caesar," he exclaimed, "and then I will give you to the Druids to be dealt with as a traitor!"

Early in the morning the Romans arrived, and after driving in the war-chariots

of the Britons, they formed a "tortoise." Each legionary raised his mighty shield above his head in such a manner as to overlap the shield of the soldier in front of him. The Roman army thus became a vast, strange, crawling creature, protected by strong brazen scales against the javelins and arrows vainly hurled down by the besieged Britons. In a short time Verulam was taken by storm at two points, and the legionaries then lowered their shields and rushed into the town—and found it empty.

For Caswallon had at the last moment followed the advice of Conan, and fled with all his people to the trackless forest. There the Romans dared not follow him. A few days after Conan brought his brave father-in-law on a friendly visit to Julius Caesar, and a peace was made between the Britons and the Romans which lasted for nearly eighty years.

COCK-A-DOODLE-DOO

CHANTICLEER was a French cock-a-doodle-do. He was certainly the most handsome cock in the world, and the loudest and boldest of crowers. His plumage shone like fine gold in the sunshine, his bill was jet black, his comb rose above his head like a red flame, and he carried himself proudly like a king of birds. No clock was so good a time-keeper as he was. Regularly every morning he gave all men notice when the sun was about to rise.

Jumping up on the wall of the farmyard over which he reigned, he flapped his wings and stretched his throat, and gave such a clarion call that everybody in the valley was at once roused from sleep. In the course of time Chanticleer became filled with the pride that goes before a fall. It is said that he even thought it was his fine crowing that drove away the darkness of the night and made the sun rise up in the sky. So Dan Russell, a sly old fox who had been prowling round the farm for three years, resolved to capture Chanticleer by playing on his vanity. He lay in wait in a wood outside the farm.

It must be confessed that Chanticleer governed his hens wisely and kindly. He never allowed them to wander into any place of danger. If they wanted any delicacy that was only to be got in the wood he went there to fetch it for them, trusting in his quickness of eye and strength of wing to escape from any lurking foe. He was busily engaged in searching for some insects beneath the trees when he caught sight of the fox hiding low in a bush. As he raised his wings to fly away cunning Dan Russell said: "My dear friend Chanticleer, I have only come to hear you sing. Please do not fly off just yet. I knew your father very well indeed."

"Could he crow as well as I do?" said Chanticleer, still keeping at a safe distance.

"He had a voice of divine beauty," said the fox. "I have often watched you singing on the farmyard wall, but though, in my humble opinion, you voice is even superior to your father's, you do not use it quite so well. You could produce a far louder tone."

"How?" said Chanticleer, coming a little nearer.

"By adopting your father's way of singing," replied the fox. "He used to stand on tiptoe and stretch his throat out to its utmost length, and then close his eyes and put all his strength into his crow. Just make an effort, and see if you cannot surpass your father."

Deceived by the wicked flatterer, Chanticleer stretched out his neck, closed his eyes, and began to crow. In an instant the fox had him by the throat and was running off with him. Now was the time that Chanticleer showed what a voice he had. He made such a clamour that everybody in the farm was aroused. Out ran the goodwife and her two daughters and their brave dog Colle; and the cow, the calf, and the very pigs joined in the pursuit. Some neighbours came to help the wife, and, helter-skelter, away they all tore—men, women, and animals—to the rescue of Chanticleer.

"Stop the fox!" cried the goodwife. "Stop him! He has stolen my fowl!"

But no one got near enough to catch the thief. Chanticleer, however, had not lost his wits, and he meant to pay Dan Russell back in his own coin. So while the pursuers were shouting at the fox Chanticleer said to him: "Tell them it is no use, and that you have got me, and intend to eat me."

As the fox opened his mouth to speak Chanticleer escaped and flew high up on a tree, and he did not come down till his friends arrived. With them he returned to the farmyard, a wiser bird.

ICTINIKE THE BOASTER

NORTH of the Arkansas River dwells a tribe of Indians called the Iowa. They have lived there for generations; their ancestors saw the sun god tumble his son Ictinike out of the sky.

Ictinike picked himself up in a very bad temper, and proceeded to go about the Earth doing all the mischief he could. Fortunately for the other people, he had no magical powers; it was suspected that his father had taken them away, and thrown him out of heaven for telling lies. Certainly he was full of deceit, and a great boaster.

At that time there were living in the valley of the Missouri four animals who were wizards. One of them, the Beaver, had the ill-luck to receive a visit from Ictinike. When the family saw him approaching they were at their wits' end, for it was famine time, and they had nothing to offer their guest. Then one of the little beavers cried: "Father, kill me and cook me rather than fail in hospitality."

So the Father Beaver had the horrid task of killing his son, and the Mother Beaver had the dreadful task of cooking him But Ictinike felt no compunction in eating him. Father Beaver had begged Ictinike not to break any of the bones, but he was careless enough to split one of the toe bones. When the meal was over Father Beaver collected the bones in the little beaver's skin, and plunged it into the river. By-and-by the little beaver crawled up the bank and shook himself.

His family rushed to embrace him, and to ask if he felt any the worse.

"Yes," he replied. "My toe bone is split." From that day every beaver has had one split toe.

When Ictinike went he asked the Beaver to return his visit, and, though the Beaver did not like him at all, politeness forced the animal to go.

Ictinike was determined to show that he was able to do as much as the Beaver, so he seized one of his own children, and drew his knife. But the Beaver stopped him, for he knew well enough that Ictinike could never bring the child to life again. Then the animal went down to the river, and returned with a young beaver, who was killed, cooked, and restored as before.

Shortly afterwards Ictinike visited the Musk Rat. It was still famine time, and there was nothing to eat in his lodge. But the Musk Rat filled a kettle with water, and set it to boil, and lo, the water turned to rice.

When the Musk Rat returned Ictinike's visit the host tried to do the same, but all that happened was that the water boiled over and scalded him.

The next creature to suffer Ictinike's unwelcome presence was the Kingfisher, who put a good face on the matter, and plunged into the stream, bringing up fish.

"This is easy enough," thought the boaster, and he tried to repeat the Kingfisher's feat when the bird came to see him. But Ictinike did not come to the surface again, and when the Kingfisher dived in to the rescue he found the stupid fellow lying at the bottom, half stunned.

At last Ictinike went to visit the Flying Squirrel. The Squirrel had nothing in his larder, so he resorted to magic. He climbed on to the roof of his lodge, and presently came down with his pockets full of walnuts.

"That is an easy way of getting a meal," thought Ictinike, but when he tried it at home he fell off the roof and got bruised.

You have seen the boastful side of Ictinike's character. I will now show you the cunning side. One day he met the Rabbit, in full war paint, and carrying his bow and arrows. Ictinike exclaimed:

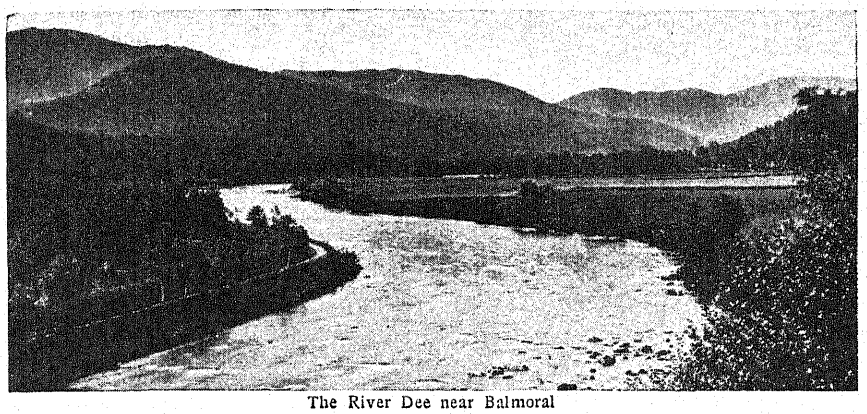
"Oh, Rabbit! I hear you are a wonderful shot; do bring down that bird!"

"I will try," said Rabbit modestly, drawing his bow. The bird fell dead into the branches of a tree near by.

Ictinike urged the Rabbit to fetch it down. The Rabbit did not want to, for the tree oozed with gum, but at length he was persuaded, and after undressing he climbed up. He was soon entangled in the sticky branches. Then Ictinike put on the Rabbit's fine clothes, and took his bow and arrows, and went off laughing.

The Rabbit must have starved to death if an Indian maiden had not wandered through the woods and heard his lamentations. She cut down the tree, and lit a fire that melted the gum, and at last the Rabbit was free. When she heard his story she exclaimed that the man who had treated the Rabbit so badly must be the stranger who had just joined her father's tribe. He should be punished.

The maiden told all her father's warriors to go into the woods and beat their drums. Ictinike had never heard the sound before. It terrified him. At every beat he leaped into the air, and as they drew nearer and louder he jumped higher, until at last he sprang to such a height that when he came down he broke his neck.



The River Dee near Balmoral

FISHES OF THE RIVERS

How tranquil is a river in summer, idling home to the sea. We sport on its banks, we swim its crystal depths, we float in our skiff with its current.

Yet truly it is alive with mystery and romance, as fascinating as any in the tales of the Thousand and One Nights. The stream, the lake, the river, are counterparts of the land. They have their teeming, throbbing life in innumerable forms. They have their stay-at-home citizens who covet no more than one straight little run of reedy water, and go no more a-roving than the old yeoman of ancient England or the French peasant of today.

There are some as restricted in their travels as the tortoise; some must stay where they are because they cannot go down towards the river's mouth lest salt water should kill them; some find fortune in water in the estuaries which is neither fresh nor salt, but brackish. But there are others which can pass from river to sea and from sea to river, making great voyages and returning year after year from their adventures, loyal to the fresh-water birthplace as a man who sails the wide seas yet returns with love and longing to his fishing village on the coast, far from the haunts of the multitude.

Every stretch of fresh water is as a world to itself. It has its natives, its invaders, its scenes of love and fidelity, its raids and battles, its searches for wealth and comfort, its tragedies, triumphs, failures. The dip of an oar, the plunge of a pebble, may break in on some ghastly crime as a parent eats its offspring, or move some other parent to hazard its own life for those of its little ones.

The river has its Hudsons and its Franklins, which go forth from their homes on far adventures never to return. It has its Drakes and Frobishers in the daring salmon and trout which change their method of living and sail from placid streams out into the terrors of the ocean, and come back in due season to scale mountains in the water on the way to their nursery grounds.

For mountains indeed the falls up which the salmon leap must seem to them. Up and up they go, from rock to rock, resting a moment, then flicking upwards till the last height is mastered, and smooth water, deep and friendly, again invites the courageous navigators.

There is nothing on land, nothing in the sea, which faces more amazing adventures than the eel and the salmon. They are Argonauts older than the human Argonauts of whom children love to read, for they have been performing their pilgrimages since days long before the time

of our own Argonauts, or indeed of human beings of any type.

Fishes were before men, but rivers were before fishes, and the rivers themselves, though such antiquities to short-lived human beings, are but as things created yesterday in time as the old Earth knows it. Great as they appear to us, they are, in relation to the Earth's surface, but as the trickles on a window pane. A sea flows today where British rivers once ran east to swell the waters of Central Europe.

A LINK WITH THE PAST WHEN ENGLAND WAS JOINED TO THE CONTINENT

A fish is the surviving witness to help the tide of testimony. The rivers along the eastern half of our land have in them a member of the cod tribe known as the burbot. Rivers which empty westward know it not, and there is a romance in the explanation. The burbot swam our rivers when they coursed eastward to join the Rhine : they are in our eastern rivers still, and in all the rivers of north and central Europe. Here, then, is a link with the past as strange as the monkeys on Gibraltar telling of times when Europe was joined to Africa.

Battle and murder are the normal sequence of events which lead fish to their dinners and their brides in our inland waters. The big fish eat lesser fish, lesser fish eat smaller fish, the smallest eat the water fleas and other insects, and the water fleas and their comrades eat the green vegetable life of the stream. The process is similar, we see, to that on land, where the herb-eaters convert vegetation into flesh and blood, and themselves serve for food to maintain lions, tigers, and other devourers of flesh.

HOW THE UNARMOURED FISH GAINED THE MASTERY OF THE WATERS

In the old days fish ran a course like that which man himself afterwards followed. They sought natural defences for their bodies, and grew armour first of thick scales and then of bone. But the sluggish fish in armour could not keep their place in the race of life any more than the men in armour whom gunpowder blasted from their moving fortresses.

The lithe unarmoured fish survived and gained the mastery of the waters. Happily examples of those strange beasts of the fluid world still remain with us to make the incredible credible. The sturgeons linger with us yet, the greatest sometimes 18 feet long and weighing hundredweights.

The biggest British example of recent years, which was caught in 1922, measured nearly ten feet. Possibly many larger ones fall to the tens of thousands of peasants who yearly line the banks of Russian rivers as the fishes swarm in hundreds of thousands from the sea to lay their eggs in the fresh water. It is not so much the flesh of the sturgeon they seek but the roe, which is a solid mass of eggs, three million and more to a single sturgeon.

This roe, vinegared and salted, is preserved and sent about the world as a costly luxury, caviare ; but to the Russian peasants it is a common food, like red herrings to our poor. Now the old rule applies again to the sturgeon—many eggs reveal manifold chances against baby sturgeons reaching full age. Grown up, the sturgeon has few enemies but man to face, we must suppose, for it retains the old-time armour, a heavy mail of bony plates covering its great tubular body.

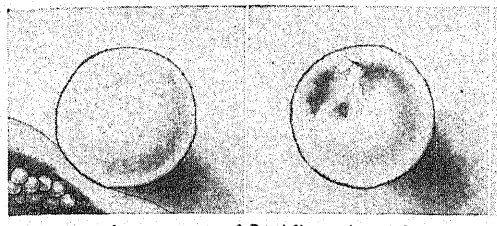
THE HARMLESS STURGEON IN ITS HEAVY COAT OF MAIL

In appearance it is as terrifying an object as a swimmer is likely to meet in a British river, yet in reality it is harmless, toothless, a mere grubber in the sand and ooze of sea and river bed after worms, little fish, and small life in shells. So the young of the species cannot expect to make much of a battle for life against enemies sharper of teeth and appetite. If fortune gives the youngster time it will flower into armour ; if not, out goes the baby sturgeon, and its mother must lay millions more eggs before one of her darlings comes to maturity.

The sturgeon is the supreme example in the waters of the fish in armour, and the disappearance of the order of which it is the relic shows that the ancient scheme of competition is a failure. There is nothing so impressive in the workmanship and build of a perch, yet the perch is a thriving, lusty fellow, abundant in all our lakes and clean streams. The great step has been made here from massive methods of defence to the cunning of invisibility, or a near approach to it.

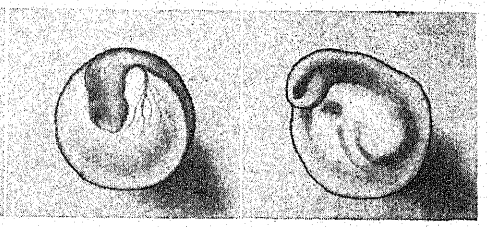
The perch with its stripes is a beautiful example of camouflage in the water. The keen-sighted angler may detect the presence of a salmon without actually seeing it ; he discerns the shadow cast on the gravel as the gliding salmon swims above it. But the perch is always in the river, so he has adopted not merely stripes

PICTURE-STORY OF A TROUT'S LIFE



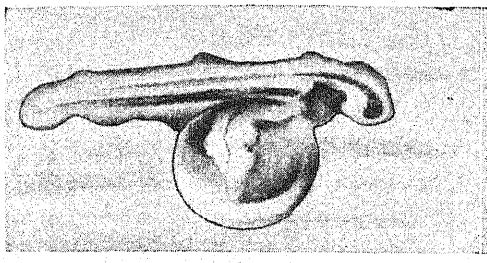
1. A trout lays a mass of eggs which adhere to the underside of a stone. Here is an egg greatly magnified.

2. After two days an opaque mark appears in the egg, and this is the beginning of the young trout.

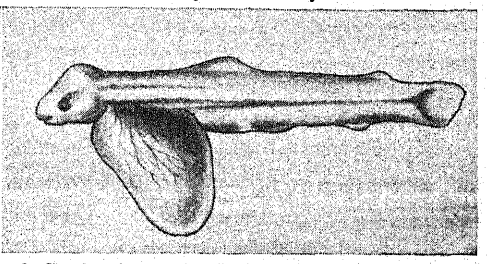


3. After about a fortnight two dark spots appear in the opaque mark, and these will become the eyes.

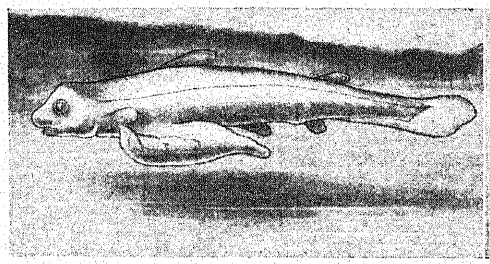
4. After about five weeks the appearance of the tiny trout can be distinguished. It has eyes but no mouth.



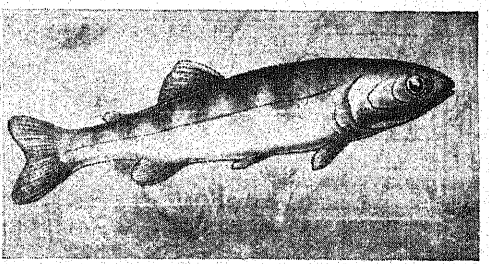
5. Forty days from the time the egg was laid the little trout is hatched. It still has no proper mouth, but lives on the yolk of an elongated sac.



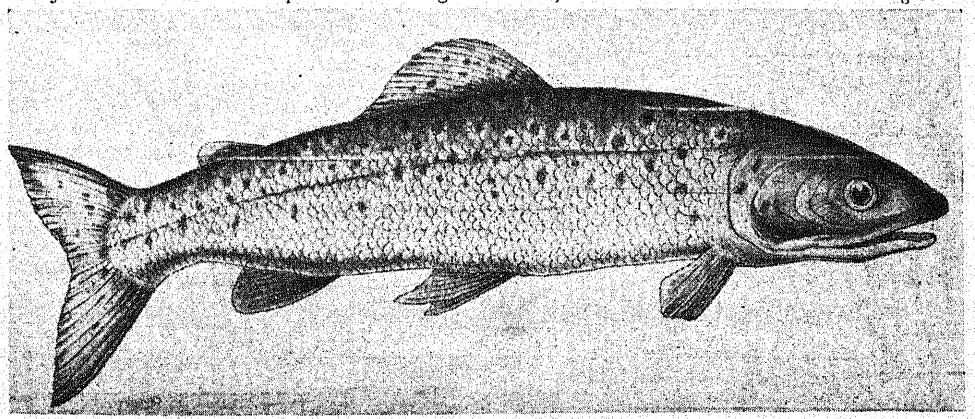
6. Twelve days after the trout is hatched the sac of yolk is seen to have shrivelled owing to the fish living on it. This process continues as the trout grows.



7. Here, 24 days after the hatching, the sac has almost gone, and the trout has increased considerably in size. It is now not quite an inch long.



8. About 110 days have now passed since the trout was hatched, and the little fish, which is called an alevin, is more like what it will be when full grown.



9. At the end of twelve months the trout is about three inches long, and it is then a perfect miniature of its parents. It feeds on insects, worms, and other small creatures, and grows bigger and bigger for several years until by the fourth year it is about two feet long. If it escapes enemies it may live for thirty years or more, and sometimes it feeds on rats and mice.

which mingle him with shadow and shade, but a colour underneath which prevents his casting a shadow on the bed of the river below him. One of the most gorgeous of the fishes scarcely noticeable among the glowing coral islands is simply a perch with a colour scheme raised to its highest power.

THE SPIKY FIN WHICH PROTECTS THE PERCH FROM THE PIKE

But as a matter of fact, the gay perch is bold and audacious, and, thanks to the great spiky fin on his back, he dares to live in the presence of the terrible pike, he and the eel together defying even that monster of our waterways. The ruffe or pope may be found in similar situations, but only in a few rivers in England, and it is there regarded as simply a modified perch, with a true perch-like array of spear-prickle mounting through the fin along the back.

In size the five-inch English ruffe matches the bullhead or miller's thumb, though not in other features. This fish is a freshwater cousin of the gurnards out at sea, with a squat, toadish head with the eyes on top, and two cunningly arranged spines protecting the sides of the ugly face. Its habit is to lie in the shadow of stones, agape for passing insects, a creature sluggish of bodily movement, but with periscope eyes aloft, alert with its mouth as a chameleon with its tongue.

Spiny fins are not denied the bullhead, and recollection of many a pricked thumb and finger will remind every boy who has hunted for game with which to stock his aquarium that the little stickleback is a masterpiece in this connection. The hooks on his back and beneath his gleaming belly might have been beaten out of swords, so sharp and potent are they. Well, why not? They are the grapnels by which, in case of need, he must anchor himself to life.

THE DARING LITTLE STICKLEBACK WHICH DINED OFF ITS ENEMY'S TAIL

Luckily they do not hurt us if we leave him alone. They are meant for defence, not offence, and that defence comes out in the form of a sharp, needle-like thrust into our flesh if we seize him, or into the mouth of one of the enemies of his native waters if it tries to swallow him.

Even this armature is not an invariable safeguard against pike. It is on record that a stickleback in an aquarium dined by nibbling at a pike's tail; but, contrary to belief, hunger-driven pike will banquet on sticklebacks. A reader's letter lies before us recording a find of 13 highly prickly sticklebacks in the stomach of one pike. Still, generally the defence is a defence indeed, and sticklebacks thrive in millions in all our waters.

It is into a stickleback romance that the oars of our lazy boat may at any time break. The male makes a beautiful nest in the water, and leads his bride to it. When she has laid her eggs she is made to depart. Thereafter he takes charge, watches over the eggs with furious affection, charging with the valour of a mothering tigress at any trespasser, and, when the babes are hatched, shepherding them with all the skill and courage of a proud hen with her family of chickens.

Away now with thought of spines and prickles, for we come at a stride to a fish which has no spines and very little activity, the carp. Many of them reached the West, like tea and silk, from China and other parts of Asia, and are now as much at home in European ponds and streams as silkworms on the mulberry trees of France and Italy.

THE GOLDFISHES THAT GOBBLED UP TEN THOUSAND TADPOLES

They are highly intelligent as fish intelligence goes, and probably the most wily fish that anglers seek to catch. Their indifference to human wiles arises partly from the fact that they live largely on vegetation, but they eat worms, small fishes, and other living things. Three of those who will read this page remember putting ten thousand tadpoles into a pond where about a hundred golden carp lived, and within a week not a tadpole remained. The goldfish had had them.

For, as we all know, the goldfish are only carp, the fairest of their tribe, but still carp. How they originally came by their exquisite colouring no one knows. We cannot trace them to any wild strain, but believe them to have been evolved by patient human selection, century after century, in China. Now, like new flowers and fruits, like freak pigeons and poultry, they breed true to type, and if we but feed them with sufficient vegetable and animal matter, and give them moderate liberty in a small pond, they sleep beneath the ice in winter, revel in the sun and shade of summer, and in English waters lay eggs from which come little black carp which in time turn to gold and even to silver hue.

Length of days is always associated with carp. We know much about them from the fact that in the time of the monasteries the monks bred them in their own ponds. The carp were the Friday diet when meat was forbidden. So we inherit a store of facts about these slow, cunning loiterers through life. They eat well, and exhaust little energy, so like tortoises and turtles, they should live long. And they do. It is said that the great carp still swimming in the lake among the country cottages of Marie Antoinette at Versailles were put there by Marie Antoinette herself, and such a span of existence is not impossible, for carp are the longest lived of all fish concerning which we have any clear evidence.

It is a big family, this of the carps, including the barbel, the gudgeon, which is really a lesser species of barbel, the pretty silvery roach, the rudd that closely resembles it, the big plump chub, which eats not only frogs but the precious young of trout and salmon; the brilliant little dace, the abounding minnow, the tench, bream, bleak, stone-loach, and groundling or spiny-loach. All these are carp.

THE FISH WITH THE SHIMMERING SCALES THAT LOOK LIKE PEARLS

Each has its special interest, and to many much beauty is given. The bleak with his shimmering scales, bright as mercury, has attracted the hands of commerce by his charms. They catch him, and, after his death, take off his scales and convert these gleaming morsels into a lining of glass beads which are sold as imitation pearls. Herring scales serve a similar end.

The tiniest of all the carp is the minnow, the commonest, gayest, jolliest of all our fishes of inland waters. These are the "tiddlers" which form the big game of the boy who goes forth with net and jam jar to fish. Being carp they can support life in very adverse circumstances, but they should have water-weed and other food, tiny red worms and the like, so that their days may be tolerable while they give pleasure to their owners.

Insignificant as they are in size, they are of great importance as the food of other fish. It is hard to believe, but a little mother minnow in her prime lays a thousand eggs a year; hence the enormous numbers of the species. Yet, common as they are, they baffle our researches in one important particular. They can change colour as rapidly as a chameleon—blue, black, purple shades, dusky gold—not to match surroundings, but with varying emotions, with appetite, with joy at the sight of food, sometimes, as it seems, for the mere delight of mocking the rainbow.

THE FEROCIOUS AND TERRIBLE PIKE, THE OGRE OF THE RIVERS

We come to the grimmest native of our waters, the pike, the biggest fish in our waters that never goes to sea, and by far the most to be dreaded by all other forms of life. The pike reaches four or five feet and more in length, with a weight of from 70 to 100 pounds according to legend, but certainly over 50 pounds.

With its weight are associated great power, huge teeth in the lower jaw, and others in the upper part of the mouth which curve backwards to the throat, so admitting prey but rendering it impossible for them to escape. This produces results like those we see when two snakes meet, mouth to mouth. Some Loch Tay fishermen found two pike of practically equal size engaged in a deadly grapple. One was swallowing the other alive, and had got it down as far as the shoulders.

In its artful lurking in the shade, looking like a submerged log, the pike resembles the crocodile. When it makes its dart there is no escape. The prey may be its own young, likely as not; it may be a rat, a water hen, a duck, a dog, a young salmon going seaward. One was seen to seize first a wild duck, then a wood pigeon, which fell into the water from successive shots from a fowler's gun.

We turn from the worst to the finest of our river folk, the illustrious salmon family, which embraces not only the salmon but the trout, the aristocracy of our inland water world. One reason for their high favour is, it must be confessed, that they afford an acceptable food for man; but they have a higher claim on our regard.

THE LIVING SUBMARINES WHICH COME IN FROM THE SEA

They achieve a graceful perfection of strength, endurance, and valiant daring which compel respect and admiration. All the salmon migrate, and the trout have their sea-seeking rovers. They have been running up our rivers from countless ages ago. Man has been fashioned, and has built huge cities along the streams which were the fishes' own way and world.

Save where we poison the waters from our mills and factories, back they come to

us still. Children of ancient days and distant quiet, they swim in from sea and, like gleaming submarines whose engines are fed with blood and oxygen, they stream through our towns, scorning the weirs we have built, using them indeed to climb toward that little nursery of their dreams far up-river, where cold sweet water ripples, shallow and bright, over golden gravel and pebbles which water has worn smooth as pearls.

It is a creature of sheer loveliness that eagerly bursts in from sea, plump as a porpoise, radiant beyond the art of silversmith. Salmon make without a halt the great change from salt water, which would be immediately fatal to their eggs, to fresh water in which those eggs must hatch; but the farther they recede from the sea, the less are they like the fish which came from it.

The silver seems to tarnish, and dusky copper to take its place. The lower jaw of the male grows and grows until a formidable hooklike process is established in front. No, it is not the effect of the fresh water, but of the urgent hand of Nature which causes the transformation. Here we have alterations comparable with the courting plumage of birds. The fierce-seeming hook is not a weapon of offence.

THE SALMON'S LONG FAST DURING ITS GREAT SWIM UP THE RIVER

The males battle ferociously for their mates, and death sometimes happens when a greater salmon fights a smaller. But the beak resembles the branches on the antlers of a deer. It is Nature's marvellous provision to prevent the males from exterminating each other wholesale.

That beak is not bone, but cartilage, therefore not deadly as it seems. The great salmon can fight on equal terms and yet not kill one another. But the great swim is in progress, up and up the stream. Nothing does the fish eat. Its yearly stay in the river may amount to four or five months, but in all that time the salmon takes no food!

It gorges in the sea on herrings and other fish, and on shrimps and prawns; and fasts in the river, like the seals at their nurseries, and like the mother Polar bear in her sleeping place of snow, where she cuddles her new cub. But do not men catch salmon by baiting hooks with artificial flies and other lures? Yes, but not because the salmon is hungry, but because it is curious. A wayward and unnecessary nibble lands many a prime salmon gasping on the bank. If it does not eat it will return to the sea in safety; if it attempts to do so it will probably dangle at the end of an angler's line.

Falls and weirs do not deter the salmon. So long as there are points in the ascent not more than six feet apart he will get up, leap by leap. Of course salmon make mistakes, and sometimes jump out on to the bank. One, not long ago, leapt clean over a man on a raft in a dock at Cardiff.

THE ARRIVAL AT THE GOAL AND THE RETURN TO THE SEA

Sometimes, too, floods are disastrous, as during the inundation of the River Findhorn, near Forres in Scotland. The swirls of flood water brought vast masses of mud and slime into the fairway of the river, and buried multitudes of salmon alive. When the river subsided thousands of splendid fish were found in the mud, washed out of the river on to the banks, and the people of Forres went forth with carts and bicycles and harvested salmon weighing up to 20 pounds apiece.

At last the head stream is reached, and there the final battles are fought between the males. The females lay their eggs in hollows wriggled out by themselves in the gravel; then all turn their heads downstream and float out to sea, gaunt spectres of their earlier selves and worth no man's while to catch. In the ocean their feasting will be renewed, their fat and splendour restored, and in due time they will make another journey inland, always to the native river, sure in aim and goal as the swallows that come homing to us back from the wilds of Africa.

The eggs hatch in from 30 days of mild temperature to five months in cold weather. The young stay for their first two years in the river, but at the end of that time they drop downstream in millions, grow great and strong, and take up their part as living barques inward bound from sea.

THE SALMON'S SMALLER BROTHERS WHICH LIVE FOR HALF A CENTURY

As to their weight, there is no doubt that salmon exceeding 70 pounds have been taken.

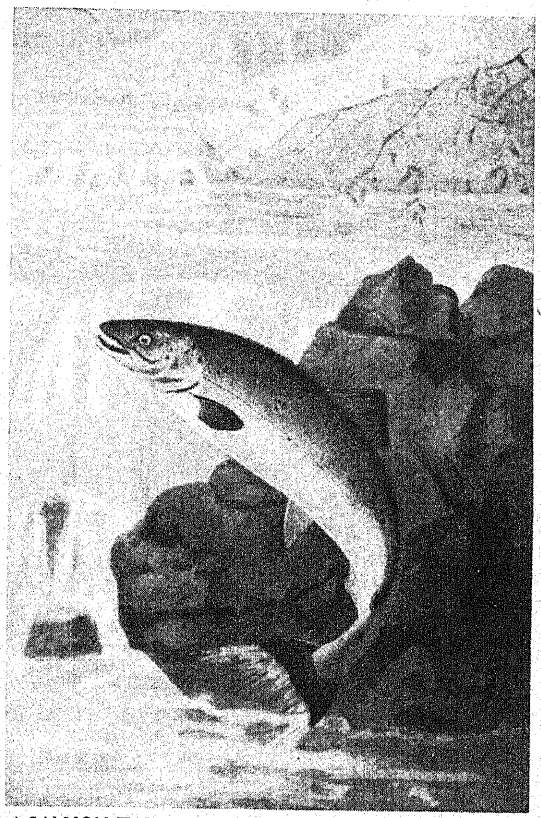
Trout, the smaller members of the family, do not reach such weights, of course, but our great lake and sea trout sometimes reach 30 pounds. There is no reason why they should not be even weightier where food is abundant, for

experience has shown that these fish, when granted safety and good feeding, can live upwards of 50 years.

Even under less favourable conditions trout are wonderfully hardy and long-lived. A Scots railwayman caught a trout and, instead of eating it, kept it alive and put it into the great tank of the engine he drove. For ten years that trout was the chief traveller of the whole order. It went everywhere with the engine, thousands and thousands of miles.

It would go to the end of the tank to feed from the engine-driver's hand; it would swim into his bucket and be carried home with him when he went holidaying. A box of matches, accidentally dropped into that bucket on such a holiday terminated the unparalleled partnership, and deprived us of the chance of knowing how long a trout can live in the interior of a railway engine, raging like a giant up and down the country.

Trout, of which we have several species, are next in favour to the salmon, but not, surely, with other fishes. They are as hungry as pike, though not so fearsome. Still, one was caught in the act of eating a young viper, and another was found to have swallowed a field mouse whole. The number of young salmon, as well as salmon eggs, they eat is enormous, and would be still greater were not unfailing millions of minnows available.



A SALMON TAKES A LEAP ON ITS WAY UP THE RIVER

Two other river types we must notice. The eel never fails to fascinate us. It is born, thousands of feet deep in the warm Atlantic, 3000 miles from Britain, yet it swims slowly to some destined riverway in our little land. Countless millions of the fry ascend the rivers at a time. They are so many that in Lancashire people go to the Ribble, let down a bucket, carry it home and allow it to stand. The lower half of the vessel becomes a solid jelly of minute eels, and is made into what is known as elver cake.

But the little marvels are not all caught. They climb with wriggling gait through sluices, up great dock gates; they ascend the banks and wriggle their way inland, marvellously directed to ponds, pools, and ditches which they have never seen, but know to be there. It is not a fact that they make all their land journeys through dewy grass; eels have been seen which have crossed gravel, macadam, heavy jagged slag to reach an inland pond in a field two or three miles away from a river.

For six, seven, or ten years the eels grow up in these ditches and ponds; then out they go, back by the way they came, over rough ways and smooth, moist ways and dry, to the river, down to the open sea, and then westward-ho almost to America.

The eels from our rivers take six months to compass the outward voyage to achievement and doom, and the journey is one of splendour as well as of wonder. The skin gleams like burnished silver, the eyes develop into great lenses with which to pierce the darkness of the way, and it is a thing of beauty and mystery that glides through the mountainous seas of the Atlantic.

Go they must. Nature demands that they shall quit a shallow ditch to lay their eggs 1500 feet and more deep in salt water. Only so can the ova come to life. So urgent is the call that if, when its hour

chimes, the eel is detained in its ditch, its flesh will break out into blisters, for lack of the necessary pressure of water.

So it must go. Down from our eastern coast they strike into the North Sea, then down the Channel, round south into the Atlantic, on and on till they reach the Azores. There, west of this group, in an area of water matching the North Sea in size, their voyage is accomplished.

THE WONDERFUL ATLANTIC MEETING OF EELS FROM EAST AND WEST

In those great depths they meet their kindred from the New World, for American eels swim East to the same waters which our British eels have travelled so far West to reach. The eggs of both are laid in the same waters, and the parents die. They have been meeting, these children of the Old World and the New, year after year, century after century, perhaps millions of years before ever a Viking or Columbus knew America to exist.

The future lies now with the eggs, from which hatch creatures entirely unlike eels. They had until late years always been mistaken for a sort of ribbon fish, for they are not of eel-like outline. The head is small and tubular, with projecting teeth, but the body is flattened.

As soon as they are able to travel, the cousins part, the American species turning west and making for the New World; ours turning east and beginning a long voyage of marvel to Europe. At first they grow rapidly in the flattened shape, but feeding brings a change. They alter as remarkably as a tadpole. The head does not grow, but the body diminishes to match its size, and takes on a cylindrical shape.

When the change begins in the deep sea, the little eels are three inches or more long, but they fast while the transformation is in progress, and measure but two inches on entering our rivers, weighing about 1500 to the pound.

THE LONG, LONG JOURNEY TO THE UNKNOWN INLAND WATERS

It has taken long to trace out their history; and it is to a patient Danish scientist, Dr. Johannes Schmidt, that we owe the final solution. We know the rivers from which the adults set out and to which the young return, but it has to be added that the time of the returning is not the least astonishing feature of this amazing story. Every baby eel that swims up our rivers has been for two years slowly navigating from the depths beyond the Azores to the stream from which it is to climb into some slimy distant ditch or pond. There they will remain, eating fishes and little frogs, carrion, or insects, until their time comes to make the great voyage to harvest and death.

Such dissolution after enormous production is not uncommon. Plants which live but a year die after their seeding, and the eels are like them. So are the lampreys, horrors of our rivers and coastal waters. An exceedingly ancient, eel-like type, they derive their name through French and Latin from the fact of their round sucker-mouths being applied to lift stones in order to nest their eggs in the hollows created. But those mouths, not properly divided into distinct jaws, yet arrayed with teeth even to the tongue, are terrible in their destructiveness.

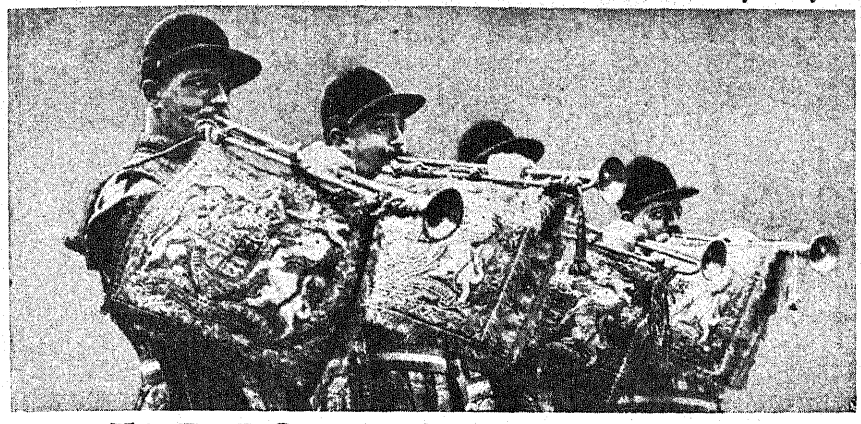
The lamprey, fixing itself by its sucker-mouth to a dead animal, sucks and rasps at the same time, so pulping the flesh into its mouth. But it does the same thing to living fish. It anchors in this way to salmon and other beauties, and rends the writhing flesh to the bone. Thus attached, it can eat a great fish alive.

THE LAMPREY WHICH DIES ON THE CRADLE OF THE NEXT GENERATION

The adult life of a lamprey may be short; its infancy, passed in the mud and gravel, lasts four years. Maturity reached, all is a feasting and fattening toward the festival of reproduction and death. The eggs are laid, great stones being lifted out for the purpose, and a high-walled dam built around the precious seeds of life. They are covered by gravel whisked up by the parent tails, and then, worn out by the labour and excitement, life ebbs and flickers out; the duty of leaving their like to follow them has sapped all their vital energies. Like the eel, they die on the cradles of the generation that is to be.

There are many other finned foragers in our rivers, char, smelt, sparling, powan, so-called fresh-water herring, pollan, vendace, umber, and grayling in the salmon family; shads, mayfish, alewives, and others closely related. There are many strange fish in distant rivers, lung fishes which defy drought, electric fishes which carry the first electric battery ever devised in the world; fishes in tropical waters that attack men; and great beasts, which are really mammals, sometimes hunt there.

Pictures in colour of many fishes of the rivers will be found on another page. See Index.



THE POMP OF HERALDRY

For centuries the boast of heraldry and the pomp of power have gone hand in hand, and a better illustration of this could hardly be found than the story enshrined in the national arms of the United Kingdom.

These, with the three lions of England, the lion rampant of Scotland, and the harp of Ireland, in a shield encircled by a garter, supported by the lion and the unicorn, and surmounted by the royal helmet, the imperial crown, and the crowned lion, form the best known of all heraldic devices. We see the arms every day on flags, in newspapers, on legal documents, and even on the packages of many household commodities which come into our homes.

These national arms are a splendid example of the link between heraldry and history, and when we understand them we find that they embody English history for nearly a thousand years.

All about how and why men came to use coats-of-arms we read on page 924. William the Conqueror is said to have used for his arms two leopards emblazoned in gold on a red background, and it was no doubt under a banner bearing this device that his knights fought and conquered at the battle of Hastings (or Senlac, as it is now more correctly called). Those leopards, in the form of lions, we still find on the national arms of England, and many people have wondered why originally they were leopards.

We can understand that the lion, "the king of beasts," should be one of the favourite charges of heraldry in early days, its courage and regal dignity having made it popular as an emblem of valour, strength, and sovereignty; but why did a man like the Conqueror use the leopard in his arms?

Some writers have tried to solve the problem by saying that the early heralds were not zoologists, and that they confused the lion and the leopard; but that is certainly not the true solution. The real explanation is given by Mr. Charles Boutell, one of the greatest authorities on heraldry. A lion walking and looking about him (he says) was held by the early heralds to be acting the part of a leopard, so that when he was in such an attitude they blazoned him a leopard. This means that the animal bearing that name bore it simply as a heraldic title, which distinguished a lion in a particular attitude. Originally any lion not shown in a rampant attitude was called a *lion léopardé*—that is, a lion leoparded.

The substitution of actual lions for leopards seems to have occurred in the

reign of Henry the Second, and as his wife Eleanor of Aquitaine bore on her robes a golden lion as the emblem of her father's duchy, Henry added this to his arms, making a third golden lion. The record of that marriage is still on the national arms.

THE LONG STORY OF THE ARMS OF THE UNITED KINGDOM

The arms remained unchanged till the time of Edward the Third who, claiming the throne of France, added to his arms the French fleurs-de-lys. To get this in he quartered the shield, repeating the three lions in two quarters, and in each of the other two quarters giving thirteen golden fleurs-de-lys on a blue ground. Henry the Fifth reduced the number of fleurs-de-lys to three in each quarter, and this device remained in use up to the death of Elizabeth.

But when James the First became King of England he brought with him his Scottish arms, a single lion rampant in red on a gold ground, and to get it into the combined arms of England and Scotland he placed it in the second quarter, balancing it in the third with the harp of Ireland on a blue ground, and repeating the whole of Henry the Fifth's English arms in the first and fourth quarters.

James's device remained the national arms, except for the brief interval of the Commonwealth, till the time of William the Third, who placed his family arms of Nassau in a shield over the centre of the British national shield. Queen Anne dropped the Nassau arms, transferred the fleurs-de-lys to the second quarter, and subdivided the first and fourth quarters, putting in them the arms of Scotland with those of England.

THE END OF AN ABSURD CLAIM BY THE ENGLISH KINGS

When George the First came to the throne he placed the rather complicated and very un-English arms of Hanover in the fourth quarter of the shield, and this continued to be the national arms till 1801. In that year the stupid practice of the English sovereigns calling themselves Kings of France was given up, and the French fleurs-de-lys, which represented this claim, were at last removed, the lions of England being repeated in the fourth quarter and the arms of Hanover placed on a shield in the centre.

The tendency of English heraldry has always been toward simplicity, and so, after the death of William the Fourth, the Hanoverian arms were removed, and the national arms of the United Kingdom became as they are now. With the crest, supporters, garter, motto-scroll, and floral badges, as shown on page 4985, they form one of the purest and most beautiful heraldic devices in existence.

It is interesting to compare the British coat-of-arms (the shield in the centre of the device), and its simple four quarterings, with some of the coats-of-arms used by Continental monarchs, such as that of the Emperor Charles the Fifth, shown on page 4992. This is a striking example of German, Spanish, and French blazonry on one coat. The shield has four principal quarters, and these are divided and subdivided again and again until we have an amazingly complicated device. In foreign heraldry, as can be seen by the many examples on page 4992, the divisions of the shield are much more numerous than in English heraldry, and many of them are grotesque.

HOW SUPPORTERS, CRESTS, AND BADGES CAME INTO HERALDRY

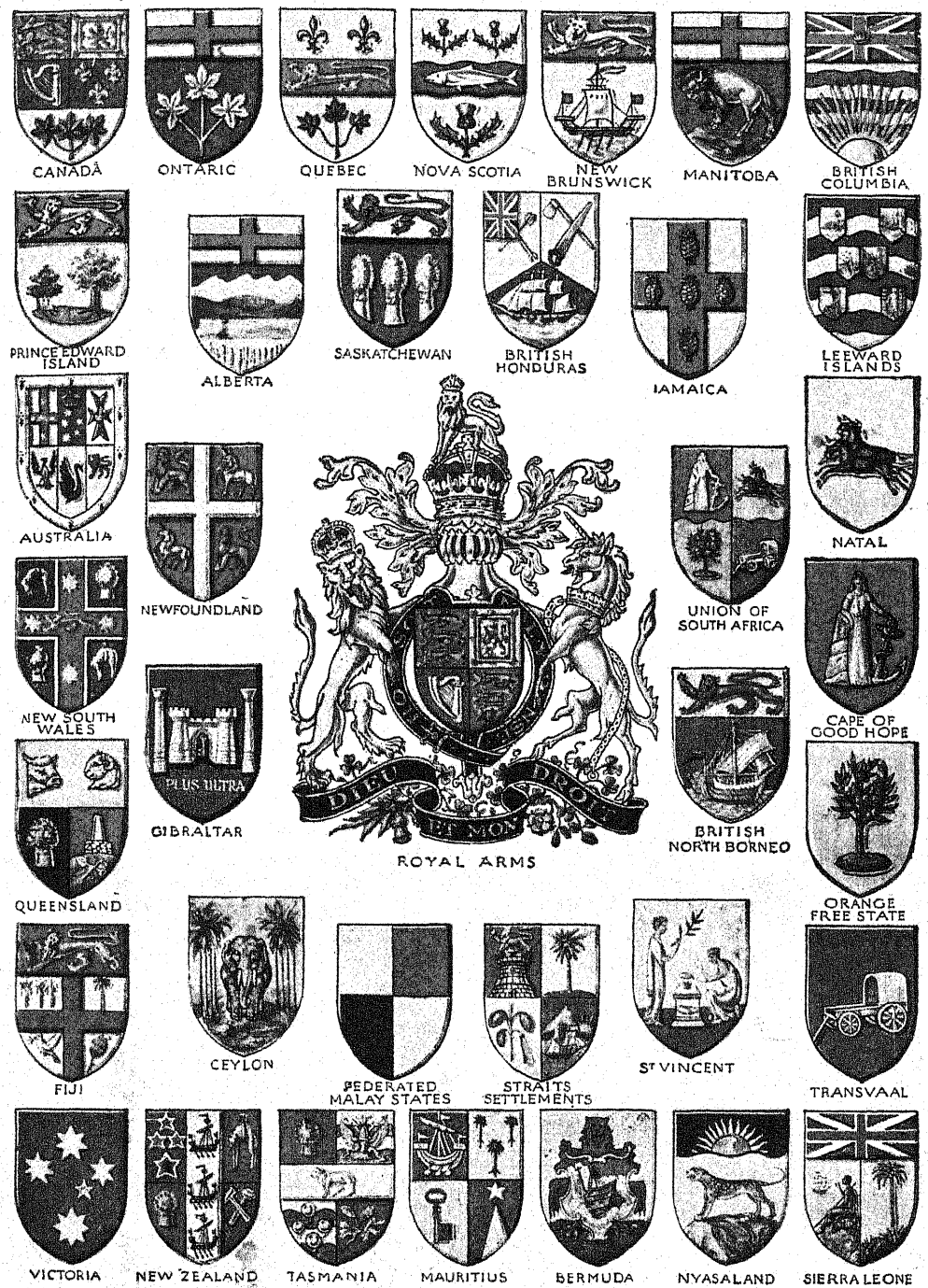
In addition to coats-of-arms, borne in a shield, there are supporters, human or mythological or animal figures, which stand on each side of the shield, like the lion and the unicorn in our national arms. These originated in the reign of Edward the Third, and probably at first represented attendants supporting the banner of the knight, or his guardian angels. Then there are crests placed above the coat-of-arms, which originated in the devices worn by warriors on top of their helmets. Crest wreaths are also found in heraldry, and are derived from the rich ornamentation of leather or fabric, often jewelled or enamelled, that wreathed the knightly helmets. A badge is an armorial device complete in itself, and was originally borne by all the followers and retainers of the owner. It is borne without any shield.

Coats-of-arms are held, not only by individuals, but by cities, counties, universities, schools, dependencies and colonies, companies, and so on, and these generally embody some of the facts of the history of their owners. Arms and armorial insignia are granted only through the College of Arms in England and the Lyon Office in Scotland.

Further notes and pictures on Heraldry appear on page 924 of this book

HERALDRY OF BRITAIN

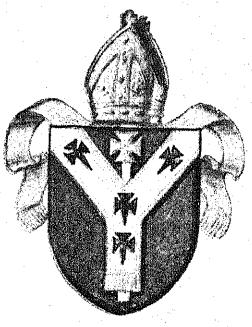
A Colour Gallery of the Arms of the Empire



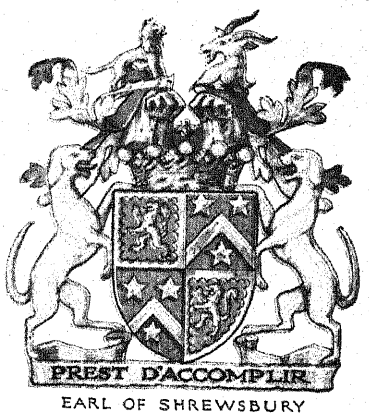
In the centre of this page we see the national arms of the United Kingdom with their supporters, crests, badges, and mottoes, all telling the thrilling story of the nation's history for a thousand years, as described in detail on page 4984. Grouped around them are the newer arms of the great self-governing dominions, the dependencies, and colonies of the Empire, arms whose charges are descriptive of the countries.

On this page is given a selection of heraldic charges, consisting of familiar inanimate objects such as weapons, the equipment used by riders, and so on. Among the most curious of these are the ones described as guttée, a term meaning sprinkled over with drops. The drops are of various kinds—d'eau, water; de poix, pitch; de larmes, tears; d'olive, oil; d'or, gold, each of which has its own colour. The heraldic helmets, crowns, and coronets are given; also examples of cadency—devices distinguishing the different members of a family.

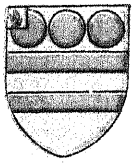
MARQUESS OF WORCESTER



SEE OF CANTERBURY

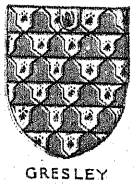


EARL OF SHREWSBURY

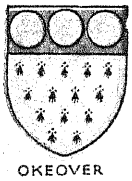


WAKE

DUKE OF NORFOLK

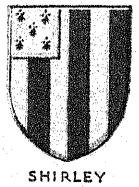


GRESLEY



OKEOVER

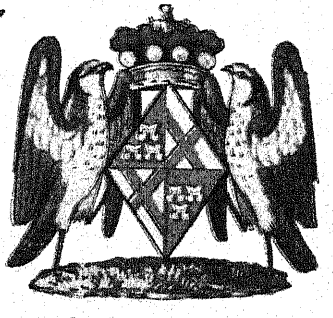
BEAUMONT



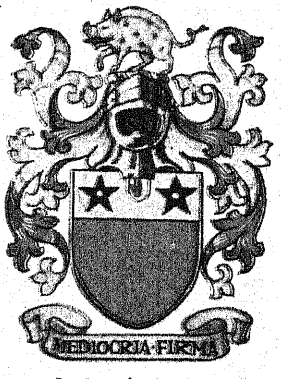
SHIRLEY

SEYMOUR

VISCOUNT HEREFORD

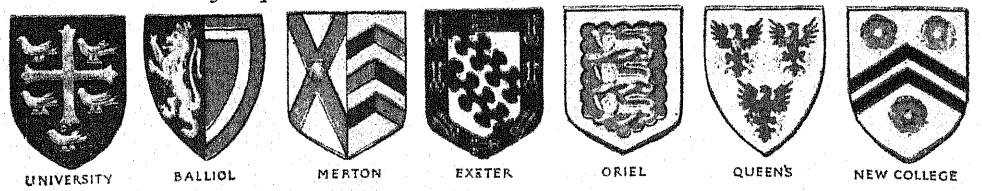


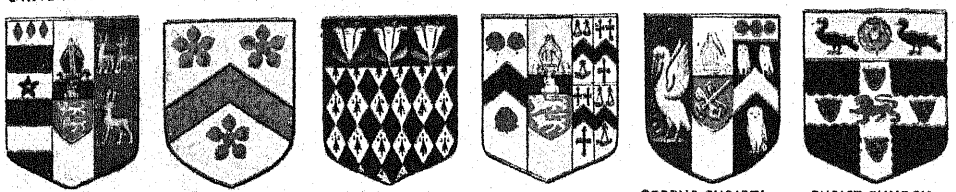
BARONESS DE ROS

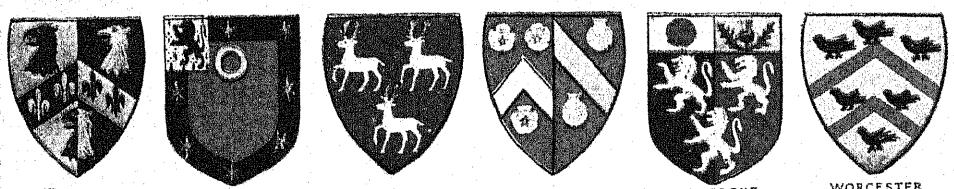


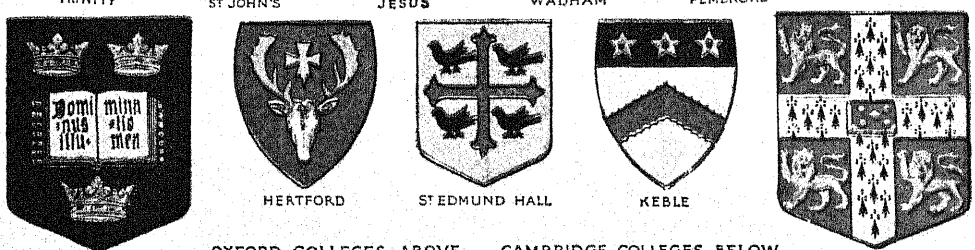
BACON (BARONET)

In these beautiful and typical examples of British Heraldry we see some of the oldest and most notable coats-of-arms borne today. In the centre are the arms of the Duke of Norfolk, the premier duke of the United Kingdom; and grouped round it the arms of the premier marquess, earl, viscount, baron, and baronet, and also the arms of the See of Canterbury. The smaller shields on the right and left of the arms of the Duke of Norfolk are examples of arms that have been borne for centuries by old historic families.


UNIVERSITY BALLIOL MERTON EXETER ORIEL QUEEN'S NEW COLLEGE

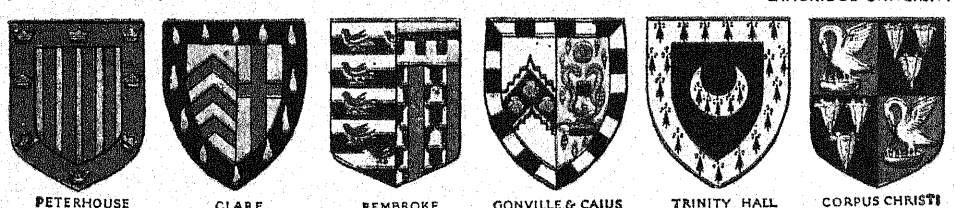

LINCOLN ALL SOULS MAGDALEN BRASENOSE CORPUS CHRISTI CHRIST CHURCH

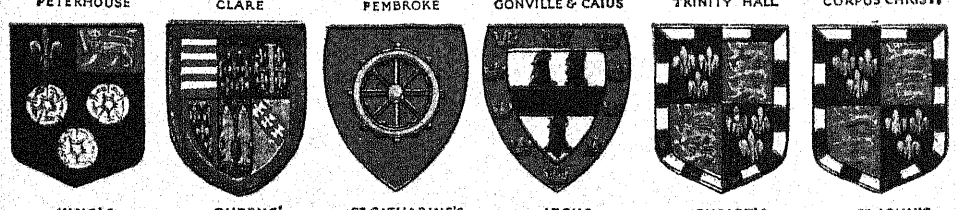

TRINITY ST JOHN'S JESUS WADHAM PEMBROKE WORCESTER



OXFORD UNIVERSITY HERTFORD ST EDMUND HALL KEBLE CAMBRIDGE UNIVERSITY

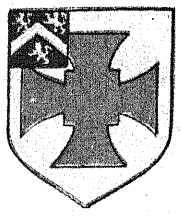
OXFORD COLLEGES ABOVE CAMBRIDGE COLLEGES BELOW


PETERHOUSE CLARE PEMBROKE GONVILLE & CAIUS TRINITY HALL CORPUS CHRISTI

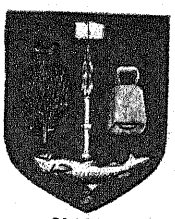

KING'S QUEENS' ST CATHARINE'S JESUS CHRIST'S ST JOHN'S

MAGDALENE TRINITY EMMANUEL SIDNEY SUSSEX DOWNING SELWYN FITZWILLIAM HALL

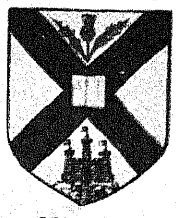
The arms borne by corporate bodies are known as Arms of Community, and among them are those of the Universities of Oxford and Cambridge. But in addition to the two Universities the individual Colleges at Oxford and Cambridge possess arms, shown here. In most cases these embody emblems of their founders.

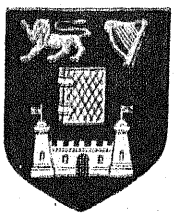

DURHAM

ST ANDREWS

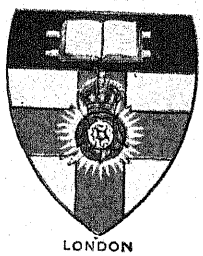

GLASGOW

ABERDEEN


EDINBURGH

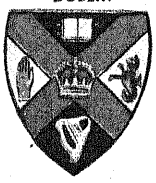

TRINITY COLLEGE DUBLIN

LEEDS

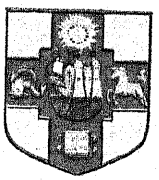

LONDON

WALES

IRELAND (NATIONAL)


BELFAST

BIRMINGHAM

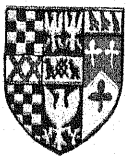

BRISTOL

LIVERPOOL

MANCHESTER

SHEFFIELD

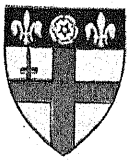
UNIVERSITIES ABOVE PUBLIC SCHOOLS BELOW

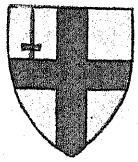

BEDFORD

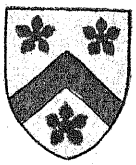
CHARTERHOUSE

CLIFTON

CHELTENHAM


CHRIST'S HOSPITAL


CITY OF LONDON


DULWICH

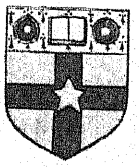
ETON

FELSTED

HAILEYBURY

HARROW

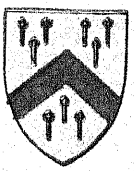
KING'S COLLEGE SCHOOL


LEYS

MARLBOROUGH

MERCHANT TAYLORS

MILL HILL

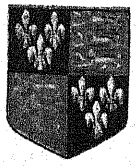

OUNDLE

PERSE

REPTON

RUGBY

SAINT PAUL'S


SHREWSBURY

STONYHURST

STOWE

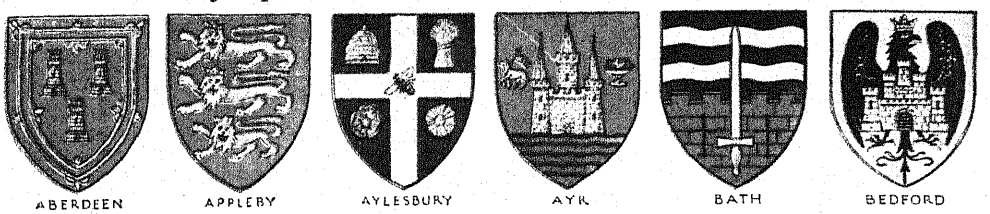
UPPINGHAM

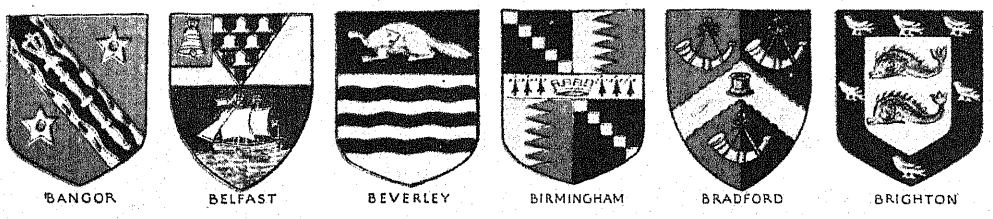
TONBRIDGE

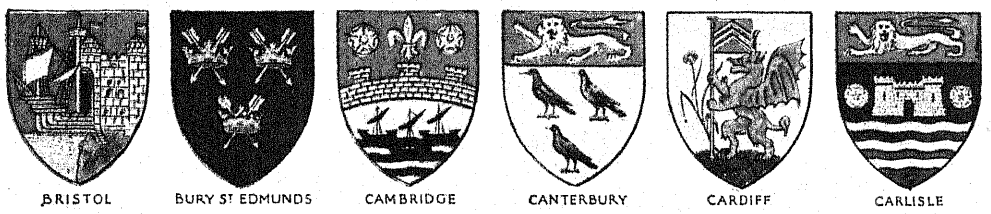
WESTMINSTER

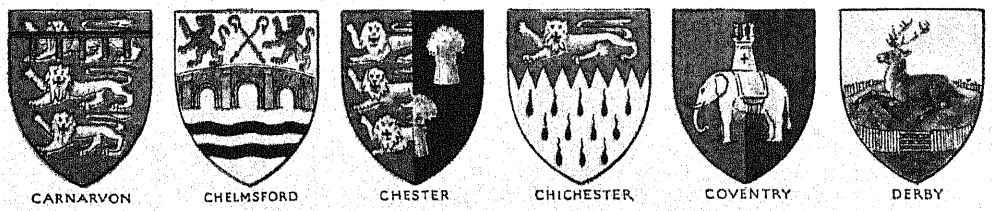
WINCHESTER

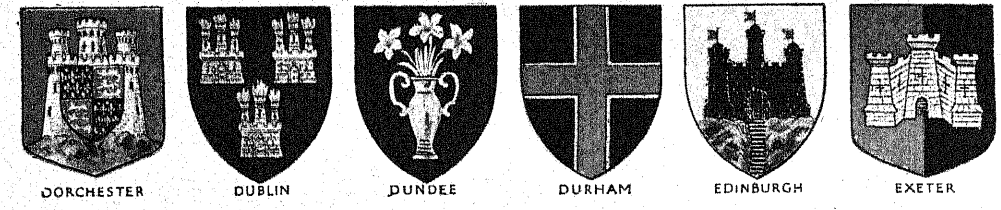
The arms of the other British Universities are shown on this page, together with the arms of many of our famous public schools. In the cases of the older schools like Eton, Winchester, Rugby, Charterhouse, the Perse, and so on, these date back for hundreds of years and commemorate their founders.

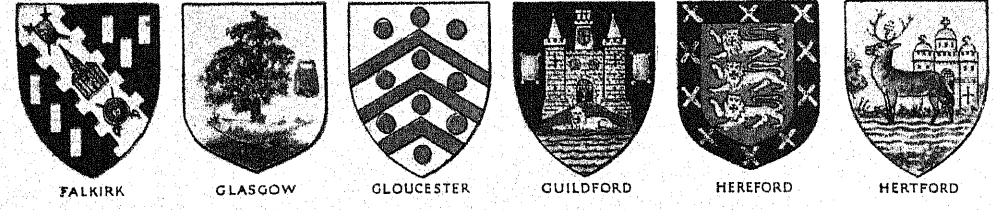

ABERDEEN APPLEBY AYLESBURY AYR BATH BEDFORD

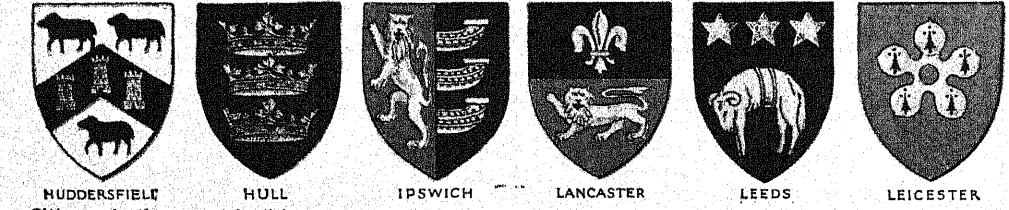

BANGOR BELFAST BEVERLEY BIRMINGHAM BRADFORD BRIGHTON


BRISTOL BURY ST EDMUNDS CAMBRIDGE CANTERBURY CARDIFF CARLISLE

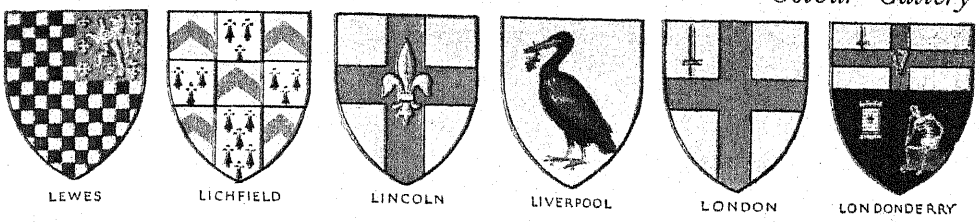

CARNARVON CHELMSFORD CHESTER CHICHESTER COVENTRY DERBY


DORCHESTER DUBLIN DUNDEE DURHAM EDINBURGH EXETER

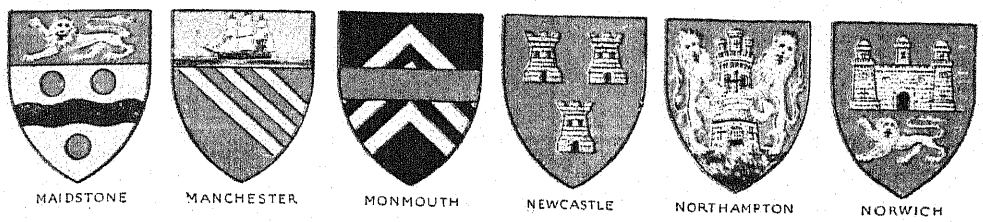

FALKIRK GLASGOW GLOUCESTER GUILDFORD HEREFORD HERTFORD


HUDDERSFIELD HULL IPSWICH LANCASTER LEEDS LEICESTER

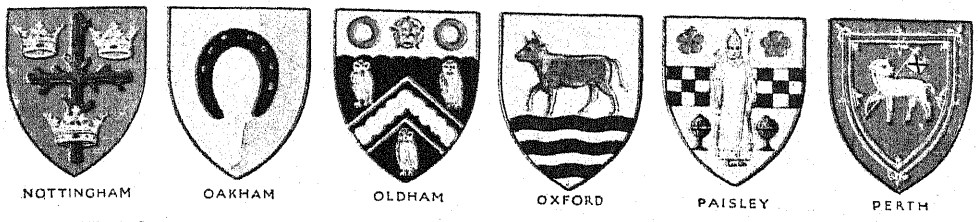
Cities and other municipalities have the right to use arms, and on this and the next page many examples of these are given. In some cases the arms date back to very early times, while in others they are of more recent grant. The arms generally represent something of the city's past history or present activities.



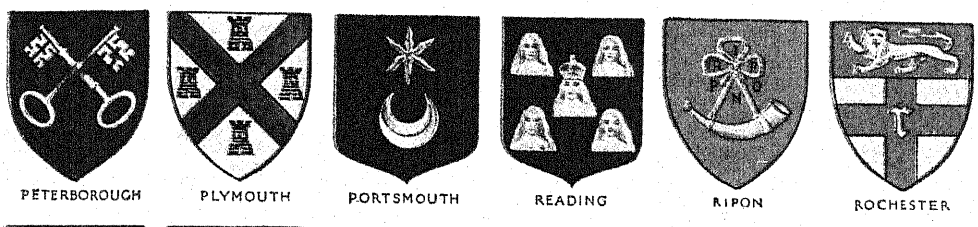
LEWES LICHFIELD LINCOLN LIVERPOOL LONDON LONDONDERRY



MAIDSTONE MANCHESTER MONMOUTH NEWCASTLE NORTHAMPTON NORWICH

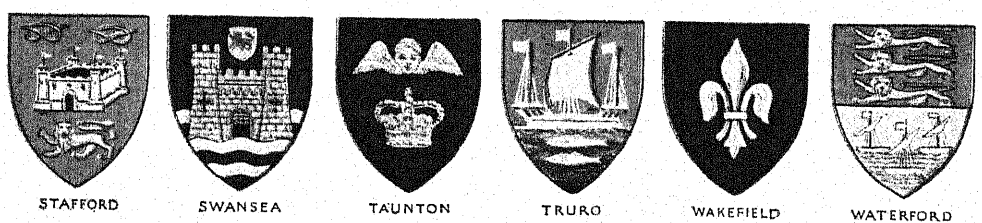


NOTTINGHAM OAKHAM OLDHAM OXFORD PAISLEY PERTH

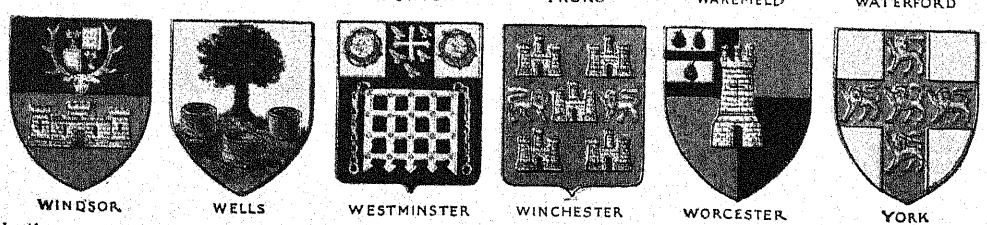


PETERBOROUGH PLYMOUTH PORTSMOUTH READING RIPON ROCHESTER

ST ALBANS ST ANDREWS SALISBURY SHREWSBURY SHEFFIELD SOUTHAMPTON

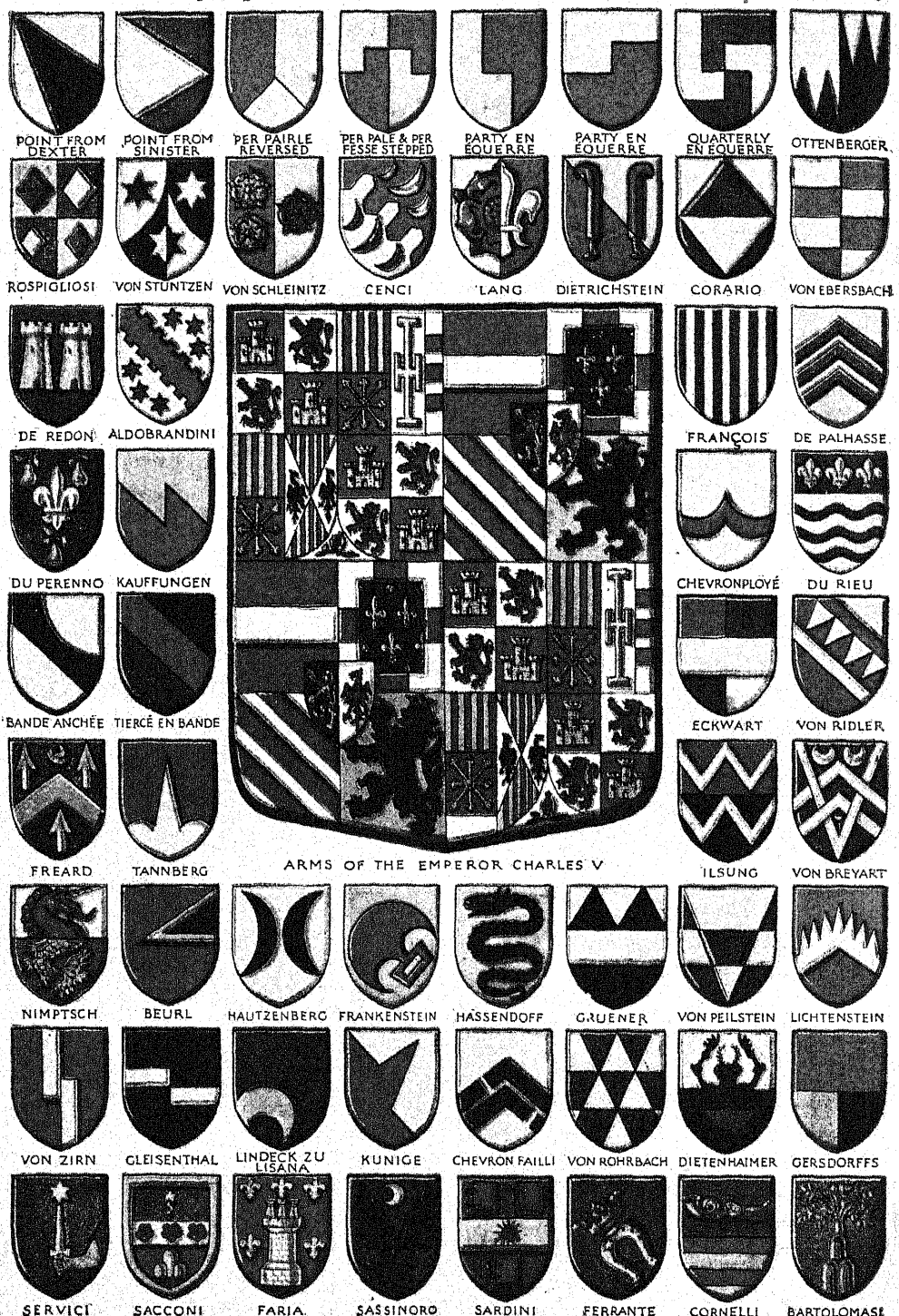


STAFFORD SWANSEA TAUNTON TRURO WAKEFIELD WATERFORD



WINDSOR WELLS WESTMINSTER WINCHESTER WORCESTER YORK

In the arms of the City of London appears a short sword, generally supposed to represent the dagger with which the Lord Mayor, William Walworth, slew Wat Tyler. This, however, is not the case, as the sword was in the City arms before that time. It represents the emblem of St. Paul, the patron saint of the City.



Here we have examples of French, German, and Italian heraldry, and we can see from the arms of the Emperor Charles the Fifth of Germany, in the middle of the page, how very complicated a foreign coat-of-arms may become with its many quarterings and subdivisions. It is really a complete record of the Emperor's ancestry and inheritance. In foreign heraldry the divisions of the shield are very grotesque and florid in other ways.

HOW DO WE KNOW THE SPEED OF LIGHT?

WE know the rate at which light travels because it has been measured in various ways, and all the measurements agree. It was Galileo who made the first attempt to measure it. He had two observers some miles apart on a clear night, and gave each a lantern which could be covered by a screen. One observer was to uncover his lantern and the other, as soon as he saw the first observer's light, was to uncover his own. The period between the uncovering of a light and the time it was seen was to be measured. Galileo found, however, that light travelled so rapidly that the distance between the two observers was too small for its speed to be noted.

The Danish astronomer Olaus Roemer, working in Paris, made the first real estimate of the speed of light in 1675, and came to the conclusion that it was 186,500 miles a second, a figure which later experiments have proved correct. He noticed, in observing the eclipses of the moons by Jupiter, that the intervals between the eclipses of one moon were not always the same, being 16 minutes, 26 seconds, greater at one time of the year than at another. He decided that this discrepancy could not be due to any real difference in the period of the eclipses, but must be caused by the greater or less distance over which the light had to travel from Jupiter to the Earth when the Earth was at different parts of its orbit, and therefore nearer to or farther from Jupiter. In this he was, of course, quite right.

Various methods of measuring the speed of light have been adopted since, and they all give practically the same figure. A very interesting method was that of Fizeau, a French scientist, who made an ingenious apparatus for the purpose. In this he allowed light rays to pass through a lens on to a mirror, so that they showed an image of the light at a certain point. The rays then passed through a lens which made them parallel, and the parallel beam passed through another lens, and was focussed on the surface of a flat mirror, which reflected the rays back, through the lenses, so as to form a second image at the point where the first image was seen. The rays then fell again on the first mirror, which was coated with a layer of silver, so thin that only half the light was reflected from it, and the other half passed through the mirror as through a lens to the observer's eye.

Between the first mirror and the lenses leading to the second, a toothed wheel with 720 cogs was arranged, so that the light could just pass between the teeth. The spaces between the cogs were equal in width to the cogs, and the wheel could be

rotated at any given speed. When the wheel was turned slowly the light was seen only intermittently, as it was shut off by each cog passing in front of it. When the wheel was rotated rapidly the light which passed through between two cogs was stopped on its way back by a cog which had moved forward in the interval. If the speed of the wheel was then doubled the light passed through on its way back, as the cog which previously shut it off had now passed on to the next space and let the light through.

By measuring a series of speeds of the wheel in which the light was alternately visible and shut off, and working out a number of very intricate mathematical calculations it was possible to find out the speed at which the light was travelling, the result being practically the same as in the other cases.

Do Fishes Sleep Under Water?

Every living creature has its time of rest. Even microbes rest, and plants, and certainly fishes. The answer, then, is Yes. But we may be sure that fishes, which are poor, feeble things, do not sleep very soundly. They do not shut their eyes. It is quite possible to sleep without the eyes being shut if it were not for the trouble of keeping our eyelids up. Now, an animal cannot shut its eyes unless it has something to shut them with, and the only things that can shut eyes are eyelids; and ordinary fish do not have eyelids. They are not the only animals like this. If you will look at the snakes in the Zoo for a minute or two you will notice that they always seem to have their eyes wide open with a fixed stare, although they may be fast asleep. This is because the snakes, like the fishes, have no proper eyelids which they can close. But there can be no doubt that when fishes rest at the bottom of a river, they sleep in the usual way, only they sleep with their eyes wide open, simply because they cannot shut them.

Where are a Frog's Ears?

We must remember that an ear is simply something by means of which the animal can hear, and not necessarily anything we can see. As a matter of fact, what we call ears are merely outside flaps of skin which, when they are large, serve the purpose of collecting the sounds in the air around. The real hearing is all done inside the skull, and in the case of the frogs, as in the case of birds and lizards there is a hole some distance behind each eye. Inside this hole is an internal ear, and in the frog there is a middle ear, too, for the purpose of conducting the sound to a special nerve, which takes it to the brain, where the real hearing is done. But the frog has no ear that we can see.

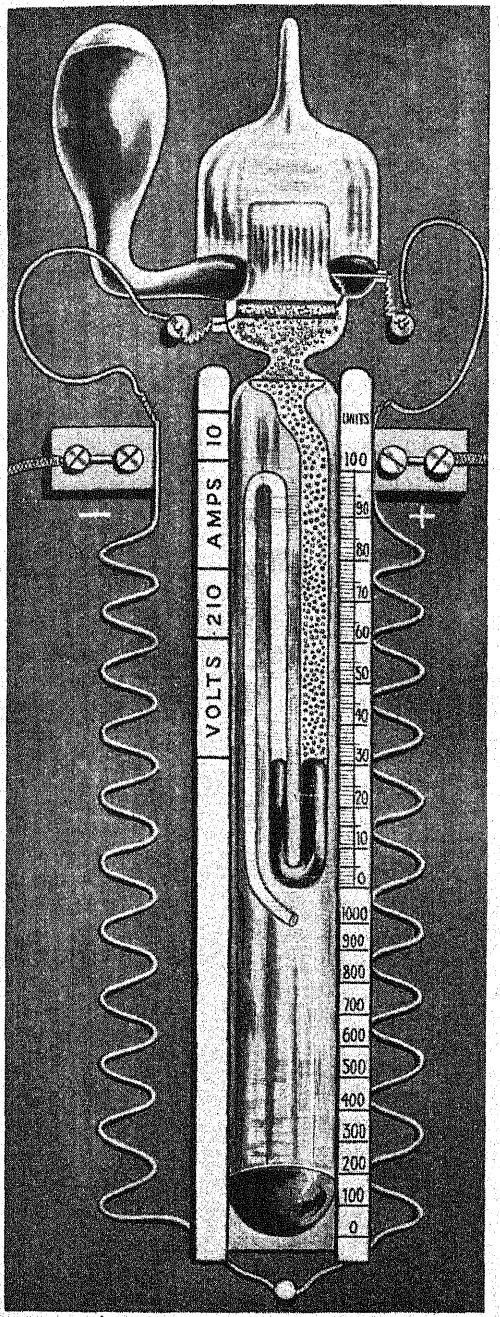
What Language did Jesus Speak?

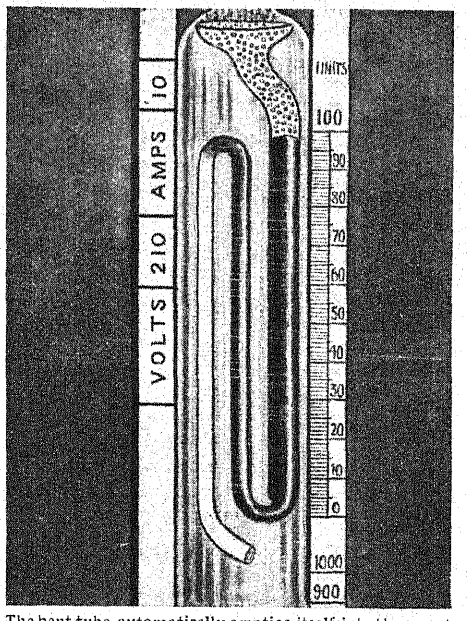
There is a great group of languages, which are all classed as Semitic. Among these languages are some which are named after the old word for Syria, the word Aram. It was one of these Aramaic languages that was spoken by Jesus, for before his time Aramaic had become the language spoken in Palestine. We can learn a lesson here. The Aramaic language itself is not a beautiful one to hear. The words are not beautiful so far as their mere sound is concerned. Nor is this what would be called a highly developed language. It is far from being so. Indeed, the language which Jesus spoke was humble, and so in keeping with everything else that we know about his life. Yet in this humble language, with its rather ugly sound, Jesus said the noblest and most beautiful things that have ever been uttered on the Earth; and in whatever language they are now spoken they are no less beautiful, and no more—for they could not be.

Why do Motor-Cars have Numbers?

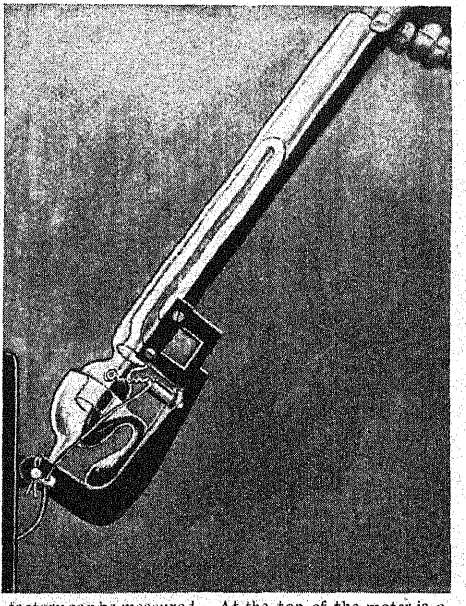
Motor-cars have numbers on them for purposes of identification, and also because of a common failing in human nature. If we were all honourable and kind, if it were impossible for any of us to do harm without wishing to make it good as far as we could, motor-cars would have no numbers on them. But as motor-cars often do damage they have to be numbered so that they may be known again. Putting a number on the car comes really to the same thing as putting a number on the man who owns it, so that if he does harm, and does not care, we may be able to find him. The fact that motor-cars have numbers can do no harm to honest people who have cars, for they would act the same whether the numbers were there or not. They are put to the expense of paying for the numbers because some other people are not honourable. That is what always happens in this world; we must all pay for the wrongdoing or carelessness of others.

HOW THE ELECTRICITY METER WORKS





The bent tube automatically empties itself into the cup at the bottom when 100 units have been used, and then begins to fill again as long as the current acts. The first picture shows that 230 units have been used. At 1100 units the meter is reset by reversing the tube as shown below.



These pictures show how the electricity used in a house or a factory can be measured. At the top of the meter is a glass bulb full of mercury, and next to it is a sealed chamber ending below in a long glass tube. Between the chamber and the tube is a circular glass fence forming a trough, round which the mercury flows. At the base of this is a metal band, round the inside of which is a platinum wire. The whole tube contains a chemical liquid, which is called an electrolyte, and contains mercury. When the current enters at the positive pole (+), it passes by a thin wire and plate to the platinum wire connected to the negative pole (−). The current acting on the electrolyte has an influence on the liquid, and causes ions of mercury to be transferred from the plate to the platinum, from which it falls into the bent syphon tube, and so into the big tube. The ions of mercury pass in proportion to the amount of current consumed, and so the units of current are registered on the scale as the mercury rises.

Why do We See the Flash From a Gun Before we Hear the Noise?

When the gun goes off it produces at the same moment the light which makes the flash and the sound which makes the report. Light is believed to be a wave in something which is everywhere, called ether; and sound is a wave in air.

Like all waves, in water, air, or ether, these waves take time to travel; but sound waves travel very slowly compared with light waves. Sound moves only some hundreds of feet in a second, while light will go more than 180,000 miles in a second! If we are very near the gun we hear the report and see the flash so nearly together that we cannot say which was first; but the farther we are from the gun the greater will be the difference of time, because the light reaches us so quickly, while sound comes lagging after it. We see the flash always within a tiny fraction of a second after it happened, but the sound wave may take a second or two to reach us if we are far away.

In the same way, if we watch a game of cricket from a distance, we *see* the bat hit the ball, and then, afterwards, we *hear* the bat hit the ball. Light travels from the Sun in about eight minutes, and from the nearest of the stars in about three and a quarter years.

What Makes our Teeth Chatter When We are Cold or Frightened?

We may sometimes have the opportunity of noticing what is really the same thing in other parts of our bodies; but for some reason or other the jaw is specially liable to this kind of disturbance. What we notice is that the muscles which close the jaw are being thrown into a quick series of little contractions. When they contract the jaw rises, and after the contraction it falls by its own weight; then the next contraction comes, and so makes the chattering.

When a muscle does this we call the act a spasm. Spasms are of two kinds: either the muscle contracts and stays so, or the spasm is in a series of little contractions, as when the jaw chatters. The great fact about all spasms is that they are independent of the will. We do not order the muscles to behave in this way, and we cannot stop their so behaving.

The causes of spasm and cramp—which is one kind of spasm—are many, the only common fact about them all being that they act, apart from the will, on muscles which really have no business to contract at all, except when the will commands them. Various kinds of emotion or feeling, such as fright, may cause a spasm. Cold, if not too extreme, appears to excite the ends of the nerves in muscles. A large number of poisons, such as strychnine and the poison of lockjaw, have the power of causing a spasm.

Why Does a Bottle Full of Hot Water Keep Hot Longer Than One Half Full?

A bottle full of hot water contains more heat than a bottle which is only half full. Water is a wonderful storehouse of heat. Different things require different amounts of heat to be put in them in order to be raised to the same temperature. If we take a certain quantity of water at any fixed temperature we please, and then the same quantity of anything else in the world, and then make them both, say, five degrees hotter than they were before, we find that we have to put more heat into the water than into the other thing; and, just as it takes longer to heat water than to heat anything else, because we have to put more heat into it, so water takes longer to cool than anything else, because it has more heat in it to lose; and, of course, the greater the quantity of water, the more heat it has within it.

But there is another point to remember; the bigger the mass of anything is, the longer it takes to cool. A thing cools from its surface inwards; the parts inside it keep each other warm. The smaller the mass of a thing, the bigger is the proportion of its surface to the amount of stuff in it, and so it cools more quickly. So that the case of the hot-water bottles, the different rates at which the Sun and the Earth and the Moon get cool, and the fact that a baby requires to be more warmly clothed than a man, are all explained by the same law.

How Can we Tell the Age of a Tree?

In the case of some trees we can only guess this, but in the case of many we can tell exactly, because the tree makes a fresh growth every year under the bark, and, as this differs in the earlier part of the year from the kind of wood which is made later, we can distinguish between one year's growth and the next. When the tree is cut across we find that it shows a number of rings, one inside the other, and each ring corresponds to a year of the tree's life.

How Did the Silver Streak Get into the Rock?

Most of us have seen the silver streak that often runs through a piece of rock. These streaks look like the network of veins we can sometimes see on the back of our hands. Indeed, students of the rocks actually call these markings " veins." When we see veins in marble, or in anything else, we may be sure that the stuff which makes the veins must once have been liquid, which ran into the cracks in the rock. When it set, it would form veins.

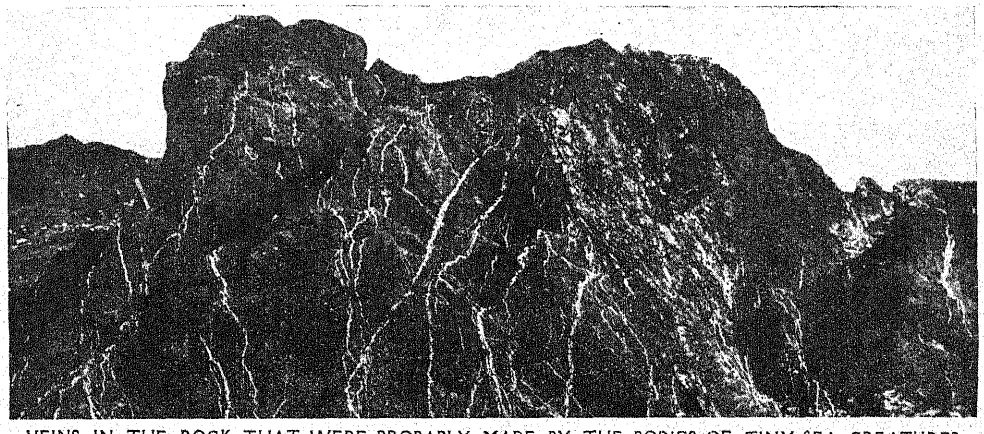
Now, rocks that are hard and dry may have been liquid in one of two ways. Either they were once made of tiny grains held in water, forming what we call a sediment, or they were once entirely liquid, and intensely hot. Iron will run when it is hot enough, and so will rocks; and we know that the surface of the Earth was once so hot that the rocks were liquid, and ran like molten iron.

In many cases the silver streaks are made of what is called calcite, a beautiful mineral made of carbonate of lime. It is really the same kind of stuff as chalk, marble, and limestone. Probably all the stuff in the calcite veins of a rock was once part of the bodies of living things—tiny animals that lived long ages ago. They formed protections for their soft bodies out of the chalk in the water where they lived, and when they died their chalky remains dropped to the bottom of the water and made a sediment there. So it looks as if this sediment had trickled through cracks in the rocks and made these silver streaks. The water dried up and the carbonate of lime formed a host of beautiful six-sided crystals, all firmly bound together to make the veins we see in rocks today.

Marble consists mainly of limestone which has been crystallised by heat and pressure, and as limestone is a white rock, marble is fundamentally white. But through the white crystalline ground-work there always run coloured veins, and these veins consist of other minerals which have become mixed up with the limestone.

Will the Ice Age Come Again?

The answer to this question is probably Yes, but it is one that is very much discussed by students of the Earth, and no one can be certain of the answer that should be given to it so long as we are not quite sure what was the cause of the Ice Age of the past.



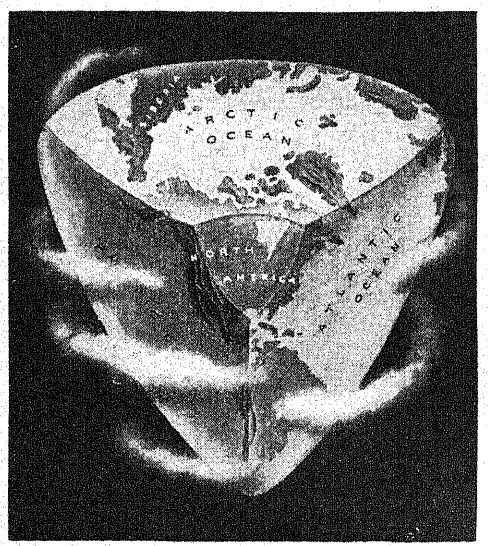
VEINS IN THE ROCK THAT WERE PROBABLY MADE BY THE BODIES OF TINY SEA CREATURES

There seems no doubt that there were at least two Ice Ages in the past, if not three. What we need is to find out why the northern half of the Earth was so cold that the great ice-cap that now exists round the North Pole spread far down over Europe. Perhaps some change in the angle at which the Earth is tilted towards the Sun had something to do with this difference of climate; perhaps this change slowly comes and goes, and comes and goes again, at very long intervals in the history of the Earth. If that is so, we shall probably have an Ice Age again, not once, but many times over; and civilisation will be driven to the south. Also, there is bound to come an Ice Age at last, when the Earth gets very cool; and then men will have to live mainly near the Equator, where the rays of the Sun fall straight to the Earth and keep it warm.

Will The Earth Always be Round?

Men of science say No; they say that already the Earth is tending to become a *tetrahedron*—that is, a pyramid with sides made up of four equilateral triangles. A sphere is the geometrical figure with the largest possible bulk for its surface, but as the Earth cools and shrinks it tends to become the geometrical figure with the smallest bulk for its surface, a tetrahedron.

This idea was first suggested by the noticeable fact that all the large land forms of the Earth taper to the south, while the great water areas narrow toward the north. In other words, the continents and countries like Africa, Arabia, India, Australasia, North America, and South America are V-shaped, while the oceans



THE EARTH AS A TETRAHEDRON

like the North Atlantic, South Atlantic, and Indian Ocean are A-shaped. This could hardly be due to chance, and it was also noticed that if a plastic globe of the Earth were pressed into a tetrahedron the sides would be formed by the oceans and the angles by the continents. This exactly fits the tetrahedral theory.

What Is a Thunderbolt?

We know that lightning often strikes houses and trees, and even people. With lightning goes thunder, and long ago it was supposed that something, a "bolt," was actually thrown from the sky during a thunderstorm. The thing men thought was thrown was called a thunderbolt. Formerly people thought God threw thunderbolts to destroy those with whom He was angry. The Romans taught that the thunderbolt was the bolt of Jupiter, who was their chief god. But we know now that there is no such thing as a thunderbolt, and the damage it was supposed to do is really due to the violent passage of an electric current from the air to the Earth, which damages anything it passes through.

What Are the Little Metal Plates Often Hung on Telegraph Wires?

In parts of the country where game is preserved for the pleasure of people who love shooting living creatures, it frequently used to happen that birds were killed by flying against the telegraph wires when alarmed by the sound of the guns. To prevent this certain sportsmen obtained permission to hang on the telegraph lines little metal discs, which, besides making the wires more conspicuous, make a continuous rattling sound as they swing in the wind. The sight and the noise of these discs causes the birds to fly either below or above the wires, or to avoid them altogether, so that they are saved for the while to be killed later by the guns. The discs are not suggested by humane feeling, though they may save some birds or lengthen the lives of some.

Why does a Cloud Fall as Rain Instead of in a Lump?

We might suppose that when the air is cool enough the water-vapour in it would be bound to turn liquid all in a mass and then fall "plump." But water cannot behave in this way, because there are certain conditions which must always be present when it turns liquid.

It is necessary that there shall be some solid separate point or particle of something round which the vapour can condense when it turns liquid. It seems to matter very little what this is, but there must be something, and the consequence is that rain falls in drops. We may say that a raindrop must have something to ride to Earth on. It is the discovery of the cause of the formation of raindrops that enables us to answer this question. The particles that perform this service for the drops may be small or great. Oftenest, perhaps, they are visible specks of dust or dirt.

It has been discovered that the molecules making up the gases of the air are liable to be broken up in a peculiar way by the action of electricity, and raindrops can form on these broken-up molecules.

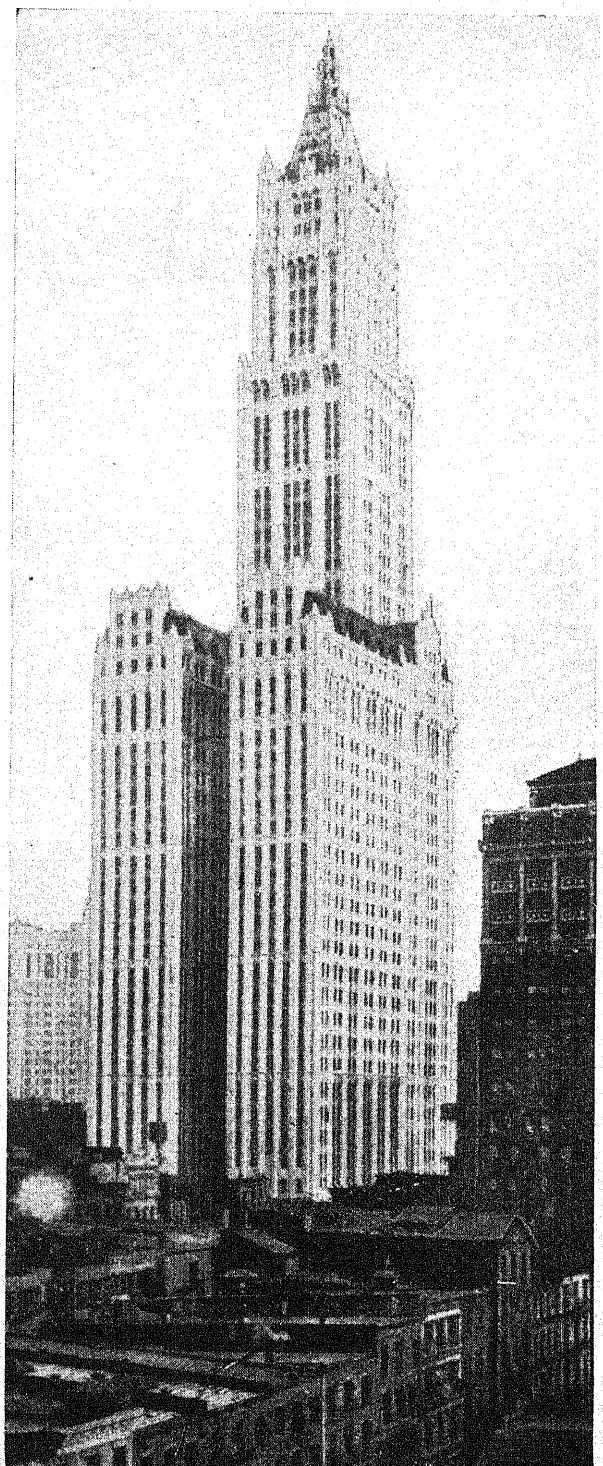
What is a Skyscraper?

Many years ago a skyscraper was a triangular sail which mariners spread above their ordinary sails when in calm areas, in the hope of catching slight breezes; but nowadays the word has a very different meaning. It is used to describe the gigantic buildings in the business quarters of American cities, where land is very valuable, and, instead of building along the ground, men have built to hundreds of feet up into the air—so that an office is like a street running straight upwards.

There are no real skyscrapers in London because regulations forbid structures to be above a certain height, and it is also doubtful whether the clay under London would support their enormous weight. New York, however, stands on the rock of Manhattan Island, and so many great buildings, erected on foundations that are absolutely firm, now tower 300 feet high, and some considerably more.

The giant of all skyscrapers is the Woolworth Building, which towers 792 feet above the pavement. It is a little city in itself. Built on foundations 110 feet deep in the rock of Manhattan, this great building of steel and concrete and marble is estimated to be of 223,000 tons weight, and has been designed to withstand wind strains of 200 miles an hour.

Many companies have their offices in the Woolworth Building, and on working days there are 12,000 people employed there. To take this army of men and women to their offices, and also for the convenience of thousands of visitors, there are 29 high-speed lifts which serve the different floors at half-minute intervals. There are also two big lifts which go straight to the fifty-fourth storey at a speed of 700 feet a minute. There are 1800 telephones. Daylight finds its way in through 5000 windows, while after dark the colossal building is lighted with 80,000 electric lamps of various powers.



THE GREAT WOOLWORTH BUILDING TOWERING NEARLY 800 FEET HIGH ABOVE THE ROOFS OF NEW YORK

Near the top of the building, on the fifty-eighth storey, is an observation gallery, and every year 100,000 people ascend to this giddy height in order to see the wonderful view which lies around in all directions.

This mighty edifice is second only in height to the Eiffel Tower in Paris, which is 984 feet high, and this curious word skyscraper is certainly expressive of its appearance from the street below.

Why are some Days Hotter than Others?

There are several answers to this question. It may be that, though the Sun itself has the same heat, its rays do not pierce through the air so directly on one day as on another, but much more slantwise. That is the difference between a winter day and a summer day. The less the distance of air the heat passes through, the more we feel it. Then, again, if a warm wind is blowing past us, the day will be hotter than if a cold wind is blowing. That is to say, the heat of the day largely depends on the wind, as well as on the strength of the Sun. Lastly, if the air contains a great deal of water-vapour, it can take up so much less from our bodies, and our perspiration has no chance to evaporate.

It is this evaporation of the perspiration from our skin that plays the chief part in keeping our bodies cool, though we are always making more heat as we live. If the evaporation is made slow by the fact that the air already holds nearly all the water-vapour that it can hold, we get warm, and say the day is hot. It may not really be any hotter than another day which feels far cooler; but we judge by our feelings, and they are largely determined by the way we dispose of the water that is continually poured out by our skin and from our lungs.

Do the Stars Fall Down?

The things that fall, and are called falling stars, are not stars at all. If a real star fell into the Earth—or, rather, if the Earth fell into a star—we should all be burned up by the heat long before the Earth and the star could meet each other. The things that fall are quite small stones, or balls of iron, or other elements. They sometimes fall all the way to the Earth, and can be picked up afterwards. By far the greatest number of them, however, never reach the surface of the Earth as stones, or *meteorites*, at all, for they are burned up or broken up into dust by the atmosphere; and a great deal of the dust in the air, especially in the higher levels, is made of this meteor dust.

We see only a few of the falling meteorites that are caught by the Earth. For one thing, we rarely see those that fall in the daytime. They are always made bright and hot as they pass through the air, but they are not nearly bright enough for our eyes to notice them when the Sun is shining on our part of the Earth. But, as these things are always reaching the Earth, and as no matter can be destroyed, quite a lot of the present matter of the Earth has been derived from meteors in this way. The dust of them can sometimes be found lying on the snow of the highest mountains.

Why Does the Slot of a Pillar-Box Slant Upwards?

The slot of a pillar-box slants upwards for two very good reasons. The first is that the upward slant makes it difficult for thieves to get anything out of the box, and the second is that in wet weather the slant upwards prevents the rain driving in and wetting the letters.

If Snow is Frozen Rain, What is Hail?

Both snow and hail are made of water, as we see when they melt. Snow is water which has frozen in the form of crystals. These, of course, are ice-crystals, and if the water had not frozen it would have fallen as rain. But hail is also made of ice-crystals, or water-crystals, as we might equally well call them; and the difference between snow and hail is not a chemical difference at all—that is to say, not a difference of composition—but merely a difference in the way the crystals formed as the water was frozen in the sky, and in the way in which the crystals cling to each other.

It seems to be probably a *very sudden* cooling of the air when it contains a great deal of water-vapour which causes the crystals to form as hail. That, perhaps, is why we commonly get hail in summer and snow in winter, as the air usually holds more water-vapour in summer, and may therefore get more suddenly cooled by a cold wind than it does in winter.

Why is There a Hole in the Teapot Lid?

The hole in the lid of the teapot is there to allow the condensed steam to escape; otherwise the pressure of this steam might force the tea out of the spout.

If a Man Flew Above the Air Would he be able to Hear?

Of course it would not be possible to go above the air, because it is the air that supports the flying machine. But it is very interesting to ask whether a sound could be heard beyond the limits of the air. The answer is Certainly not. Beyond the limits of the air there is only the ether, and though the ether carries light and heat it cannot carry sound-waves, which are produced always in material things, like air or water or wood.

Tennyson has put into the mouth of one of the greatest of Latin poets some lines so perfectly beautiful that we should know them. The Latin poet Lucretius is supposed to be saying that the false gods men believed in in his day lived in the spaces between one world and another, and could, therefore, know nothing of our sufferings and thoughts. They inhabit, he said,

> The lucid interspace of world and world,
> Where never creeps a cloud, or moves a wind,
> Nor ever falls the least white star of snow,
> Nor ever lowest roll of thunder moans,
> Nor sound of human sorrow mounts to mar
> Their sacred everlasting calm.

Can Anything Travel Faster than Thought?

We sometimes say "as quick as thought," as if thought were the quickest thing in the world; but that is far from true. When we think, waves of something travel along the nerves inside our brains, and if we want to measure the speed of thought, the best way to do so is to measure the rate at which a nerve-current travels from point to point.

This cannot be done directly in anyone's brain; but we can do it in other ways. We can take a long nerve, such as we find in the arm or the leg, and by the use of delicate electrical clocks we can find how fast it carries its messages. About the speed of an express train is what we find. That is very slow compared with the speed of the Earth, and slowness itself compared with the speed of light. So "as quick as lightning" means far more, *millions* of times more actually, than "as quick as thought."

Now we can do another thing. We can find out how long a person takes to distinguish between, say, a red colour and a blue colour. When he sees red he is to do a certain thing, and when he sees blue he is to do something else—as quickly as he can. We can measure exactly how many hundredths of a second this takes to do; then we can subtract the time taken in running to and from the brain, and we find that most of the time was spent in the brain—in the thinking.

Why Does Water Boil when put on Lime?

The answer to this depends on a very interesting chemical process. Water does not exactly boil when put on lime, but it is certainly true that the water is made very hot; and our question really should be: Where does this heat come from? Lime is a compound of the metal calcium and oxygen. It is therefore called the oxide of calcium, and each molecule that makes up this compound contains one atom of each of these elements; so chemists write it by this *formula* or sign—CaO—Ca for calcium and O for oxygen. If water gets to this oxide, the water and the oxide combine very powerfully. It is as if the quicklime (as it is often called) drank up the water and slaked its thirst, and so we now call it slaked lime. This slaked lime is oxide of calcium plus water, and its formula is simply the two formulas added together, CaO, H_2O. The best way of writing this is $Ca(OH)_2$. The small 2 means that there are two parts each of oxygen and hydrogen. As in most other cases of chemical action (just as when a fire burns) heat is produced by this slaking of lime, and that makes the lime and the extra water very hot.

Why Can we See the Whole Circle of the Moon When it is Not Shining?

The reason is that the Earth shines brightly by the Sun's light, just as the Moon does; and the Earth's light is sometimes enough to light up the Moon so that we can sometimes see even the part of its face that is not lit by the Sun.

There is a curious and celebrated mistake in a famous English poem which shows that the poet did not at all understand the Moon, and apparently had never seen what we have seen. It is The Ancient Mariner, by Coleridge, who speaks of

> The horned moon, with one bright star
> Within the nether tip.

Of course, no one ever saw a star within either tip of the crescent Moon, because the rest of the Moon is there, and would hide the star. The nearest star is many millions of miles farther away than the Moon. If Coleridge had ever seen the Moon as described in this question, he could hardly have made such an extraordinary mistake.

Why are so Many People Always Ill at Sea?

The exact nature of sea-sickness is difficult to discover, but it is certainly closely connected with the semi-circular canals in the ear. The function of these canals, as we read elsewhere, is to preserve the balance of the body. As the head alters its position the fluid in the semi-circular canals shifts in position, and so excites certain nerves which send messages to the brain-centre controlling the muscles which balance the body on the feet. Now when a ship is moving, and pitching, and heaving, the canals are sending contradictory messages to the balancing centres, so that the centres become bewildered and excited as it were, and they excite adjoining centres, and ultimately disturb the centres which have to do with the secretion of bile and other juices, and also perhaps the centres regulating the muscles. These cause contraction of the stomach, and the final result is an unpleasant feeling of giddiness and sickness.

This sort of sickness and giddiness may also be caused by passing an electric current through the semi-circular canals. Of course, sea-sickness is favoured and increased by the smell of oil and food, and *by the fear of being ill;* but the chief cause is neither fear nor nauseating smells, but disorderly and contradictory messages from the "balancing canals." It is said that Lord Nelson was often sick at sea.

Why did Diogenes Live in a Tub?

Diogenes lived in a tub to show how slender were the simplest needs of mankind. This simplicity was one of the views held by the cynics, the sect founded by Antisthenes, to which Diogenes belonged. The word cynic means a dog. It was thought to be appropriate because the cynics were surly like dogs, boasted of not needing the comforts created by civilisation, and did not care what people thought or said of them.

Diogenes dressed in rags, let his beard grow, and roamed about Athens with a tub on his shoulders which he used as a shelter at night. Alexander the Great curious to see him, once called on him, when he was in his tub. "What can I do to please you?" inquired the king. "Just get out of my light," replied the cynic. This plain and proud answer pleased the monarch so much that he went back thinking: "Were I not Alexander the Great, I would wish to be Diogenes."

Diogenes troubled so little about what would become of him that he allowed a fellow-citizen to sell him as a slave of his own; but the Corinthian, his master, soon discovered the intellect of this queer man and entrusted to him the education of his son. Diogenes died in 323 B.C., at 96. The people of his native town, Sinope on the Black Sea, claimed his body, erected statues to his memory, and richly decorated his tomb with the marble head of a dog.

What were Marie Antoinette's Country Cottages?

Marie Antoinette was an Austrian princess who became Queen of France through her marriage with King Louis the Sixteenth.

One of the summer residences of the Court was the palace of Versailles, but it is so immense, and there were always such crowds of guests, that the queen found no change there after her Paris life, and so she wished for a little residence of her own. In accordance with this wish the king gave her "the small Trianon," the little neighbour of the Grand Trianon, one of the Versailles palaces where kings liked to retire.

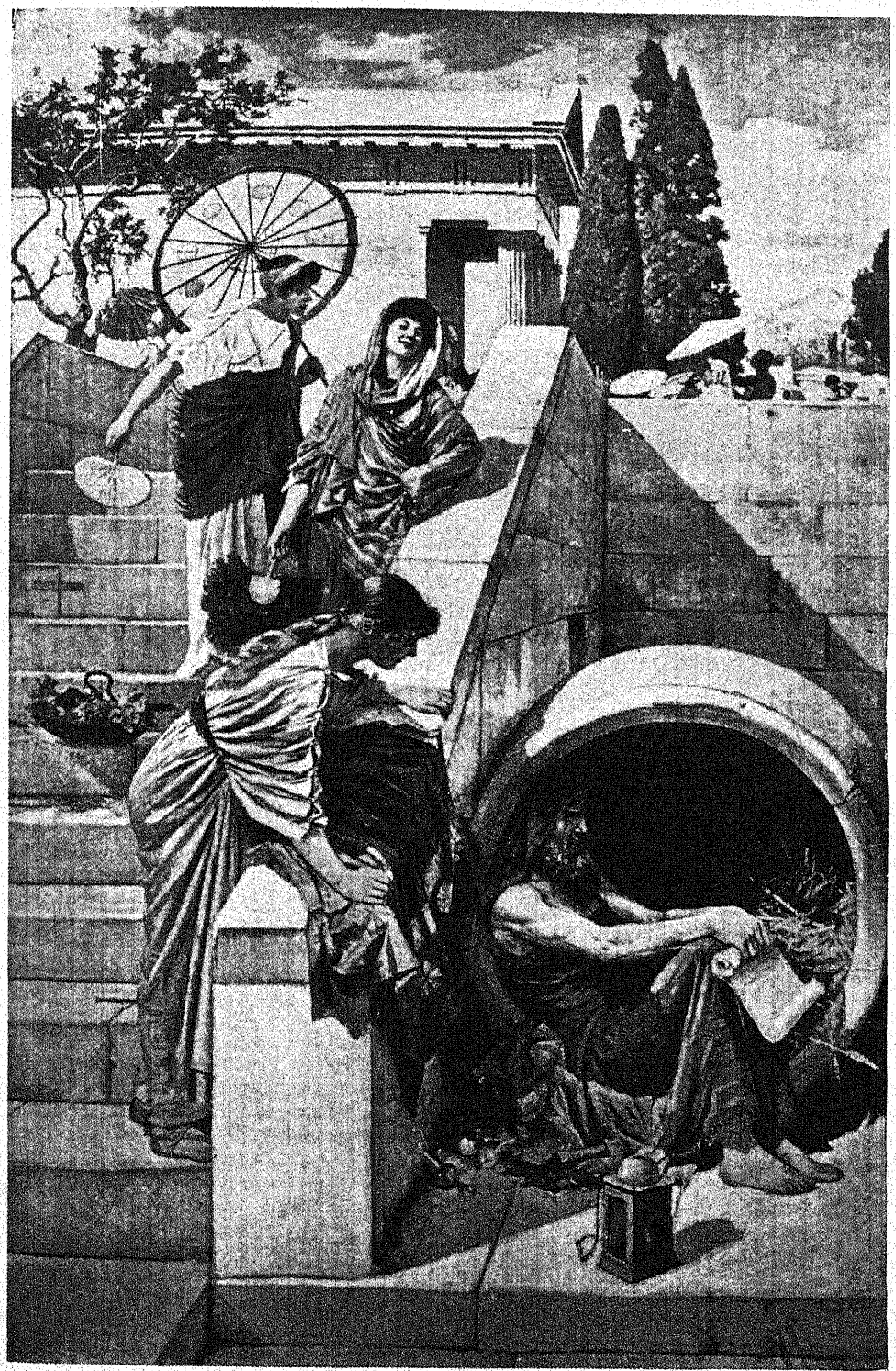
Marie Antoinette felt quite at home in this lovely little spot. She had beautiful gardens planted there, with trees brought from England. A lake was made, a river traced, lawns laid down, and small rustic cottages were built in the wood around. There was so much to her liking that the queen grew fonder and fonder of the place. She had a farm added to the Trianon, and it is said that she sometimes enjoyed feeding fowls and making butter herself. It is not surprising that she found so much pleasure in those innocent imitations of country life as a change from the pomp of Versailles.

The Little Trianon is deserted now, but it is open to visitors as a sort of museum, and we may still watch in the pond ancient carp eager to snap up bits of bread as they did a hundred and fifty years ago from the hand of Marie Antoinette.

Is the Wind Ever too Strong for an Aeroplane?

It is probable that engines could be made with sufficient power to resist any wind, and even to make headway against any wind; nevertheless wind can be too strong for an aeroplane, both because the framework of an aeroplane cannot be made strong enough to stand the buffeting force of an irregular gale, and because it would be probably impossible to preserve equilibrium in a tempestuous wind

A MORNING CALL ON DIOGENES



THE OLD GREEK CYNIC DIOGENES AT HOME IN HIS TUB—FROM THE PAINTING BY J. W. WATERHOUSE, R.A., IN THE NATIONAL GALLERY, SYDNEY. See question on page 5002.

Why is it Colder on a Mountain-top?

The warmth we live by is mostly in the surface of the Earth, though doubtless most of it has come from the Sun in the first place, and the air, besides being necessary for us to breathe, is also a blanket that keeps in this warmth. When we climb a mountain we pass through the densest part of this blanket and away from the warm crust of the Earth, and so we get cold. It is the same when men go up in an aeroplane. On the other hand, if we go down into a coal-mine we get hot, though if we go down in the daytime we are actually going farther from the Sun. We should all be frozen to death in the night if it were not that the Earth is warm itself, and that the blanket of air keeps the warmth in for us.

Why Do We Not Get All We Want?

If we study what happens to those people who get nearly everything they want, even without having to work for it, we find that it is very bad for them. It is quite certain that we, and every part of our bodies, and every power we have, are naturally meant to work, to fight against difficulties; and it is better to fight, even if we do not conquer, than it is not to fight at all. One of the reasons why history records so many degraded kings is that these people, all their lives, got everything they wanted. Every living creature getting everything it wants is apt to become weak and degraded.

Many sensible grown-up people who have lived careful lives, and have had a fair chance in the world, know that they do get all they *really* want. No doubt they would like to have more money than they have, or more wisdom; yet they know that if they work they will get enough for their happiness, and if wise people have that they do not worry themselves by wishing for more.

Why Have We Bones in our Bodies?

The first use of our bones is, by their strength and resistance, to form a supporting framework for our bodies, and prevent them from collapsing in a shapeless mass on the surface of the ground under the influence of gravitation. That is what would happen to a boneless man, if there could be one; and if we had both our legs broken we should soon find how useful whole bones are in resisting the pull of the Earth. Even apart from the pull of the Earth our skeleton is necessary to hold the body in its shape: and so fishes, too, have bones. The second use of our bones is to furnish rigid bars on which our muscles can pull. Our muscles could not be what they are—the wonderful servants of our wills—if we had no bones.

And, lastly, the red cells of our blood, without which we could not breathe, are made in the marrow of most of our bones.

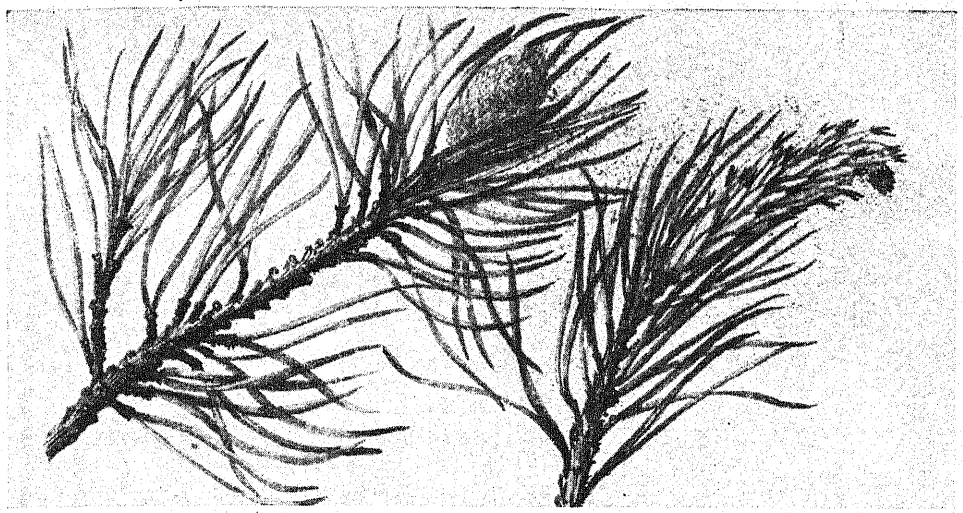
How Can it Snow and Rain Together?

As both snow and rain are made of water this seems rather a puzzle, for water must be solid at one temperature and liquid at another. There can only be one explanation, and that is certainly the true one. The rain must have been formed at one temperature—that is, above the freezing-point of water, which is called 32 degrees Fahrenheit; and the snow must have been formed at another temperature, below the freezing-point of water. This may easily happen, as the temperature of the air varies at different levels. In such a case as this, then, the snow and the rain have been formed at different levels, the one below and the other above the freezing-point of water; and the snow, in falling, has not had time to be warmed so much as to melt.

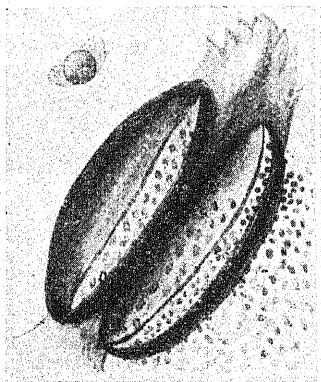
When was Christianity Introduced Into England?

It is often said that Augustine first introduced Christianity into England in the year A.D. 597; but this is not true. There were Christians in England long before then. Augustine came on a mission from Pope Gregory, and afterwards became the first Archbishop of Canterbury; but there were British churches and bishops before his time. Many soldiers in the Roman legions were Christians, which shows that Christianity had penetrated the army, and, as many legions were in Britain for three or four hundred years, Christianity was probably brought into this country by them. Nor must we forget the traders and merchants who were constantly coming and going between Britain and the East; many of these would be Christians, and would spread their religion among those with whom they traded. Gradually little churches sprang up and increased, until by the year A.D. 314 we find three British bishops attending a great council held at Arles. So that in less than 300 years after Calvary there was an organised Christian Church in Britain, and Christianity must have been introduced long before then.

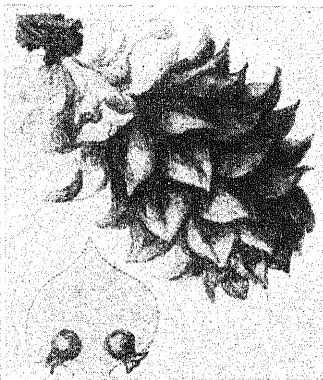
THE LIFE-STORY OF A SCOTS PINE TREE



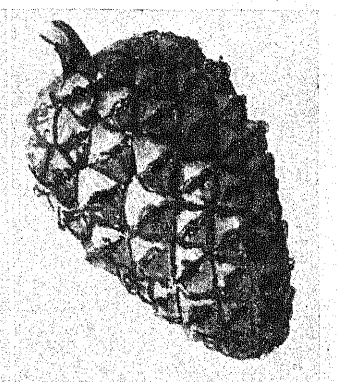
1. These pictures show how a conifer (or cone-bearing tree) is produced. The tree we take is the familiar Scots pine, and here we see a male cone shedding its pollen, which is being carried by the wind to a female cone at the end of a new shoot on another branch of the same tree. The pollen is powdery, and is often spoken of by country people as sulphur.



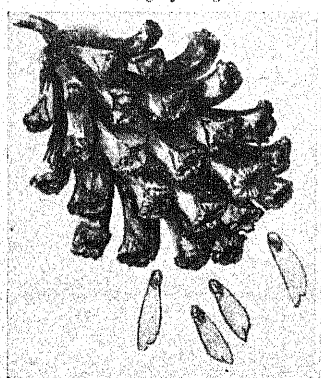
2. Here is an enlarged view of the pollen sacs on the male cone, showing them opening and shedding the pollen. A single pollen grain is shown still more highly magnified.



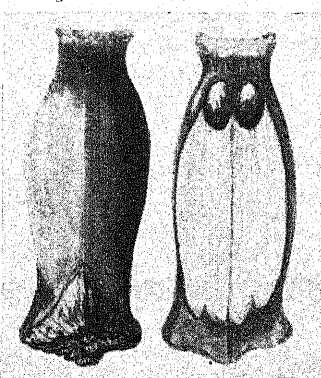
3. This is a female cone, shown enlarged, ready to receive the pollen from the male cone, and one scale from the cone has been more highly magnified to show the ovules.



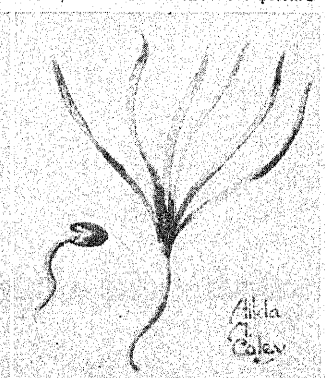
4. Here is the female cone developing after fertilisation, but the scales are still closed. When the cone is ripe these scales will open to release the seeds, as shown in the next picture



5. The ripe cone is here seen opened, and the winged seeds are dropping to the ground, where they will sink into the soil, and grow into trees.



6. This shows a back and front view of a seed-bearing scale. In the front view on the right we see the winged seeds ready to fall to the ground.



7. Here, on the left, is a seed germinating. It will develop into a seedling pine, as shown on the right, and eventually into a Scots pine tree.

Does a Tadpole Know it Will Lose Its Tail?

We cannot speak of a tadpole knowing anything in any such way as this question suggests. A tadpole, a fish, an insect may recognise a thing it has seen before, and remember whether it is nice or nasty; but no such creature can ever know in the sense suggested by this question.

Let us consider what the point is. If a tadpole is to know that it will lose its tail, this means that it has arrived at the idea of itself as I, and that it is able to think of itself in the future and what will happen to it. In other words, the tadpole must be conscious of itself. But this consciousness of ourselves is found in no living creature but man, and is, beyond all other things put together, the fact which distinguishes man from every other form of life. Even a human baby does not have self-consciousness. Tennyson has said:

> The baby new to earth and sky
> Has never thought that this is I.

When a baby learns to talk, it first speaks of itself as baby, and only gradually discovers itself, and speaks of I. Then it has become really human. If a tadpole knew that it would lose its tail, the power to do that would at once place it on a level with ourselves: it would be no tadpole.

Where Does our Breath Go?

Fortunately for us, the first thing that happens to the breath we breathe out is that it ascends. It does this because it is almost always warmer than the air it meets, and is therefore lighter, and must rise. This means that when next we breathe in, we take in unbreathed air, and not the used-up air we have just breathed out. This difference of temperature is the first thing that decides what happens to expired air, but that is not all. All gases, when exposed to other gases, tend to get mixed with them, until, if nothing interferes, the various gases are equally distributed. This important fact about gases is called *diffusion*.

Expired air has much more carbon dioxide in it, and, as a rule, much more water-vapour than ordinary air has. These gases, then, at once begin to diffuse into the air round them. But the proportion of oxygen is much higher in the air generally than in expired air, and so oxygen diffuses into it from outside. This process of mixture sounds simple, but is very remarkable when we come to study it, for the atoms of each gas seem to behave as if all the other kinds of gas were not there, and act simply according to the number of atoms like themselves which they find around them.

Diffusion is due to the fact that gases are made up of quickly moving atoms, and these travel to wherever there are few of themselves from wherever there are more, but take no notice of atoms of any other kind.

What Did the First Living Thing Eat?

This is one of the most important of all the questions that have to do with the beginning of life on our planet. When we study the food of animals we find that they all depend for their food on the work done by other living things—either plants or other animals that live on plants. Therefore we are quite sure that the first living things on the Earth cannot have been animals. Even if the animals had been brought from some other world there would have been nothing for them to eat, and they must have died of starvation.

When we study the food of plants we find a great difference. They can live entirely on things which have been made, or can be made, in the air and in the soil, without the action of life of any kind. From this we know that plants must have lived before animals on the Earth, and that the first living creatures must have been plant-like.

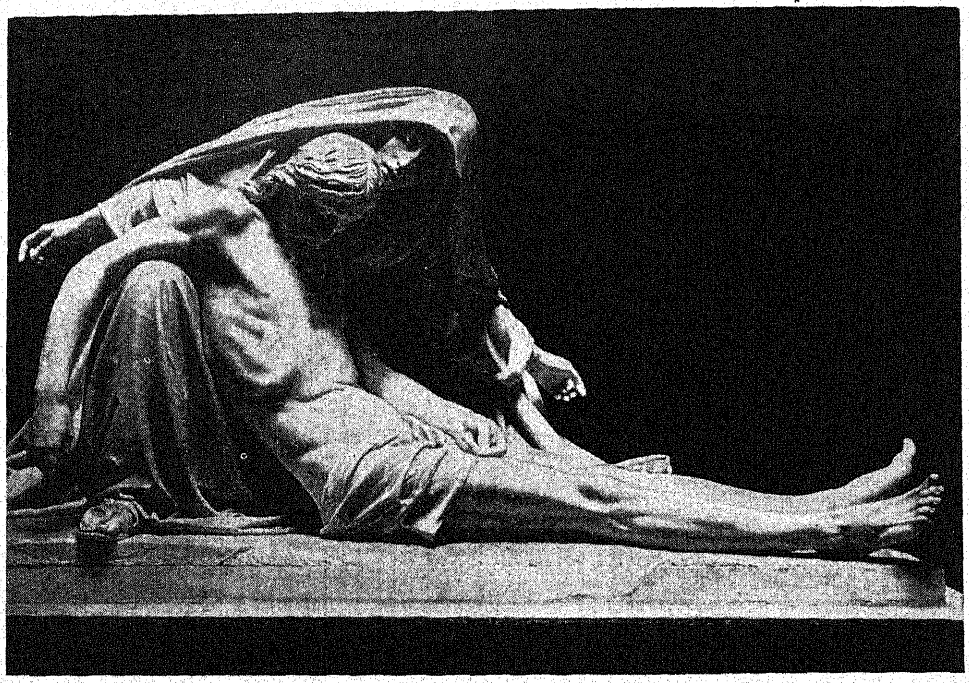
We say *plani-like*, rather than *plants*, because they were, perhaps, very different from any plants on Earth today—perhaps simpler than the simplest living cell we can find anywhere. And, like most plants of today, they must have lived on water, the carbon dioxide of the air, and on various salts found in the soil. Important above all must have been the salts containing nitrogen, washed down into the soil by the rain from the air when they began to be made through the action of electricity and sunlight on the oxygen and nitrogen of the atmosphere.

What is the Origin of £ s. d.?

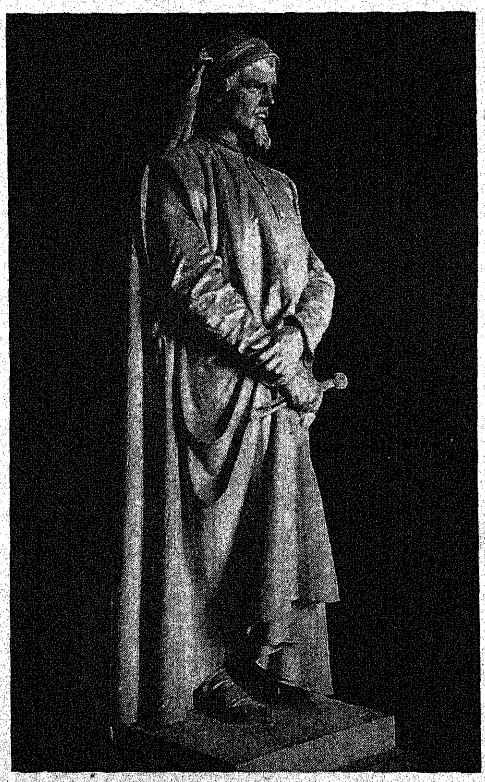
The letters stand for the Italian words lire (pounds), soldi (shillings), and denari (pence), derived from the Latin words *libra, solidus, denarius*. The terms were introduced into England by the Lombard merchants. Lb. is short for libra, a pound, and the plural in English should really have no s, being simply lb. the same as the singular.

FAMOUS SCULPTURES OF THE WORLD

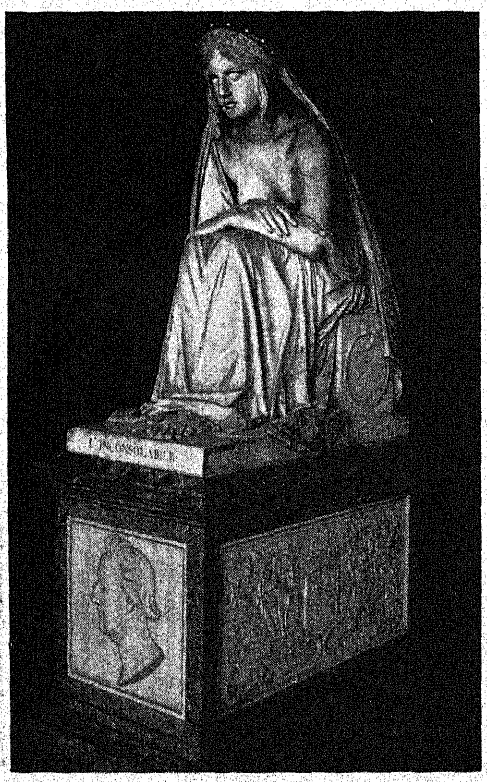
THE FINE STATUE OF DAVID BY GIOVANNI LORENZO BERNINI



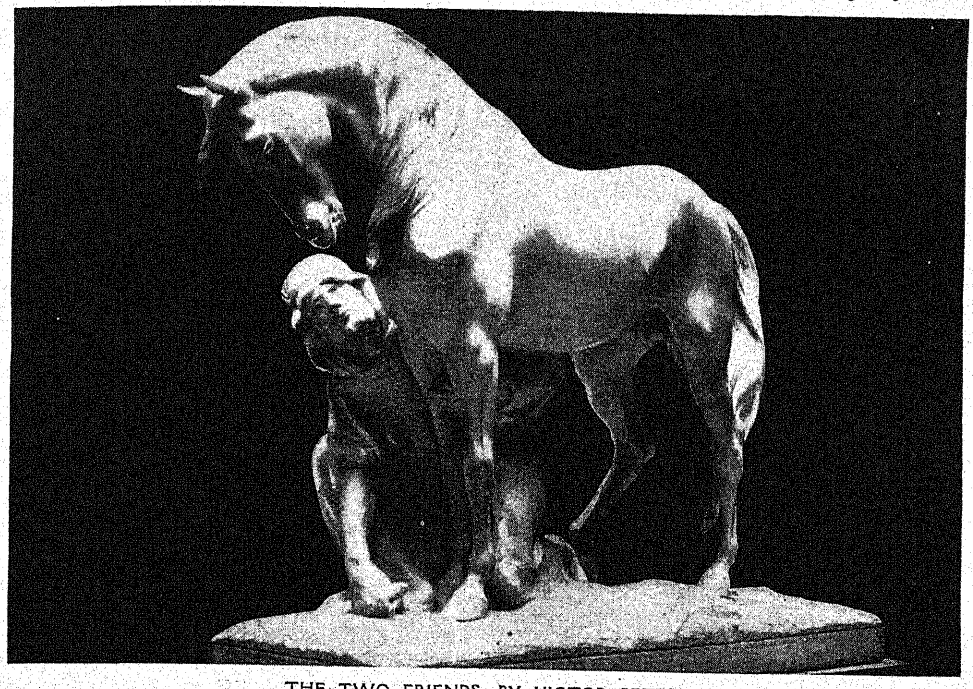
LA PIETÀ, BY GIOVANNI DUPRÈ



GIOVANNI PISANO, BY SALVINO SALVINI



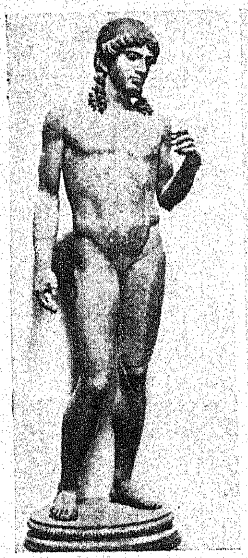
GRIEF—A MONUMENT BY LORENZO BARTOLINI



THE TWO FRIENDS, BY VICTOR PETER

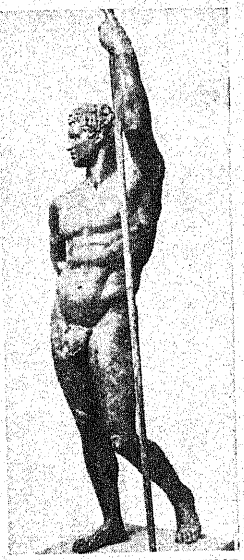
MIREILLE, BY ANTONIN MERCIE

JOAN OF ARC, BY PRINCESS MARIE OF ORLEANS



A FIGURE OF APOLLO FOUND AT POMPEII

A BRONZE FIGURE OF AN AMAZON FROM HERCULANEUM



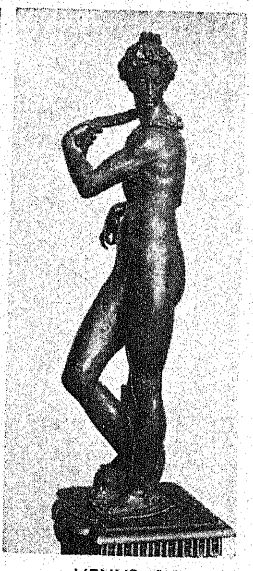
AN ATHLETE, FROM THE BATHS OF DIOCLETIAN

AN ANCIENT STATUE OF A WRESTLER FROM HERCULANEUM

CAIN—A BRONZE STATUE BY GIOVANNI DUPRE

A WAR MEMORIAL FIGURE
BY F. DERWENT WOOD

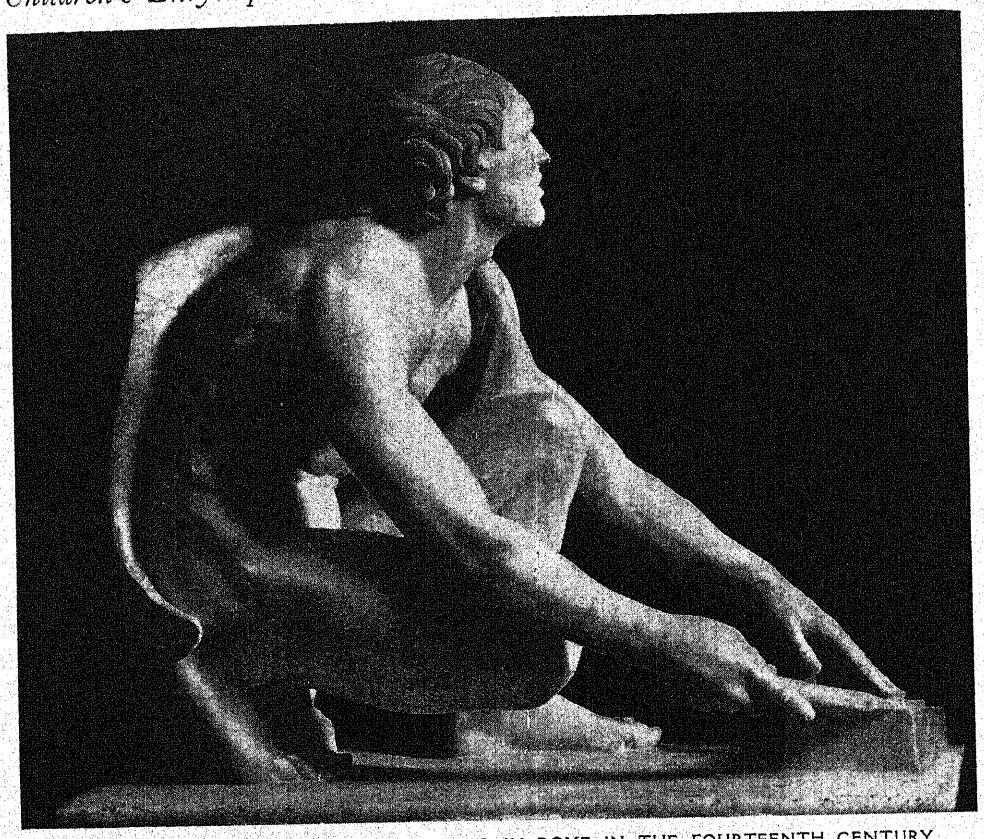
AN ANCIENT GREEK
HEAD OF A HORSE



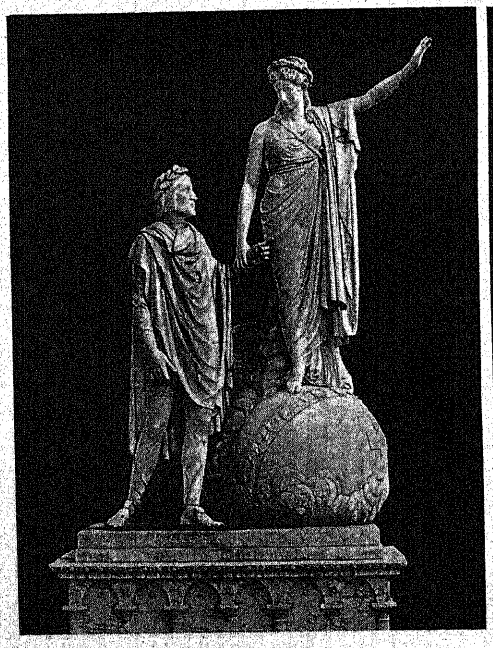
VENUS, BY
ELIA CANDIDO

A SIXTEENTH-CENTURY STATUE OF A BOY

A FIND AT POMPEII, BY HIPPOLYTE MOULIN

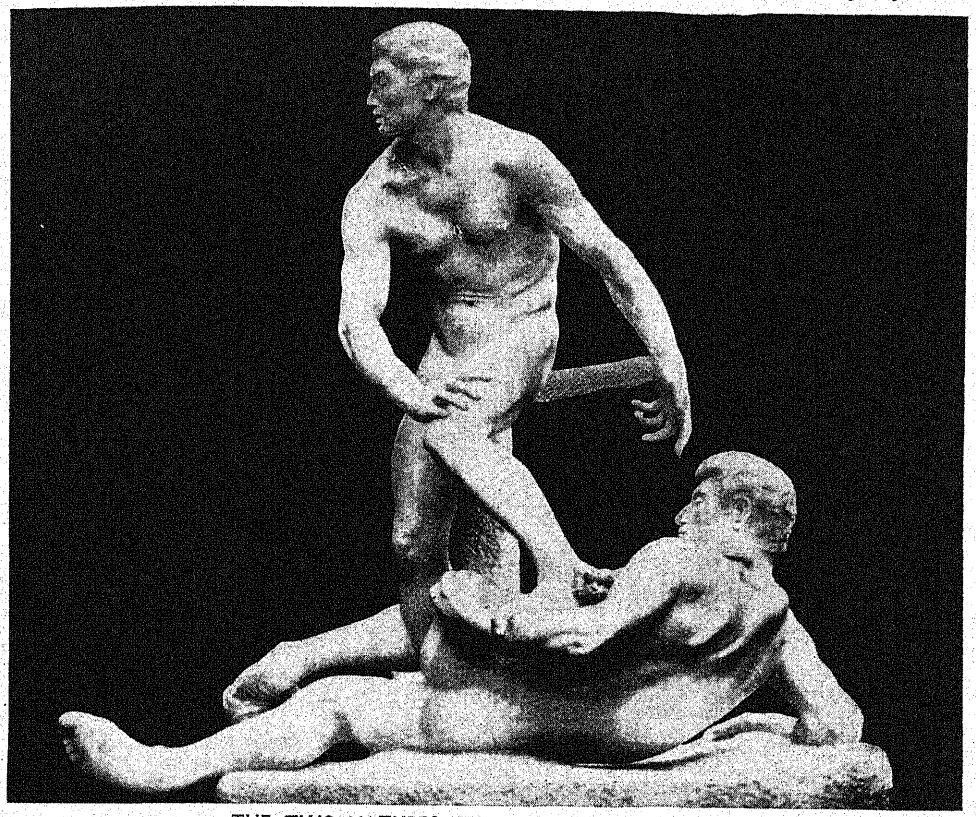


THE KNIFE SHARPENER—A STATUE FOUND IN ROME IN THE FOURTEENTH CENTURY



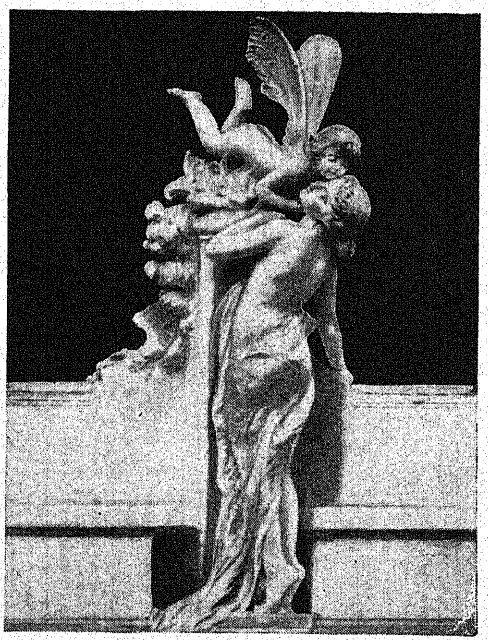
DANTE AND BEATRICE

CHARITY, BY LORENZO BARTOLINI

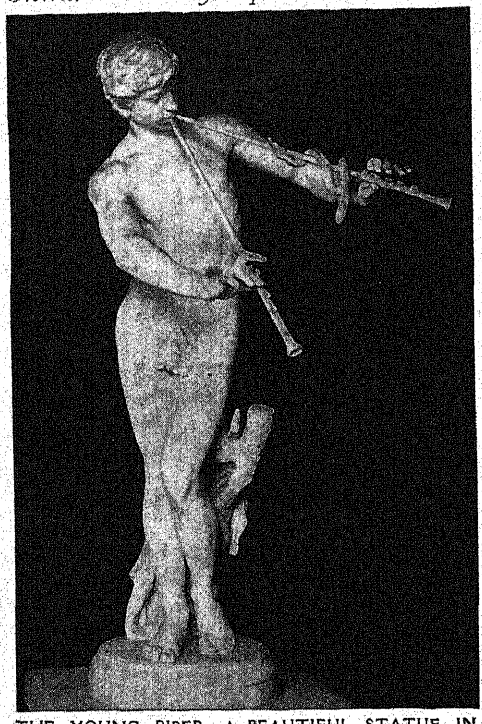


THE TWO NATURES. BY GEORGE GREY BARNARD

APOLLO AND DAPHNE
BY GIOVANNI LORENZO BERNINI



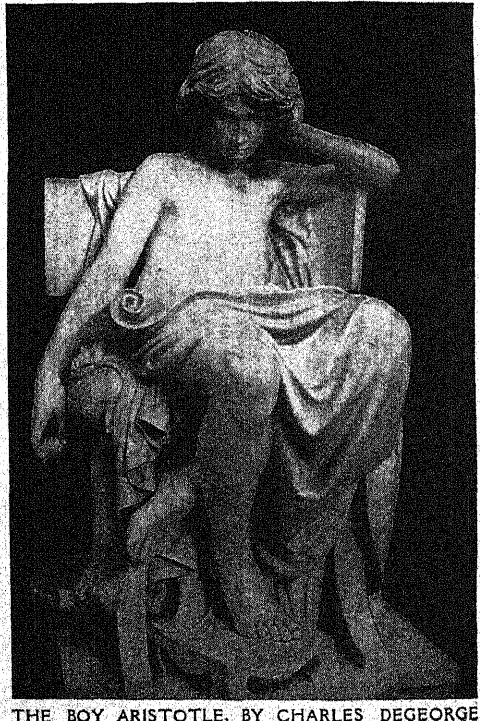
THE FLOWER AND THE BUTTERFLY
BY RAPHAEL C. PEYRE



THE YOUNG PIPER—A BEAUTIFUL STATUE IN THE HOTEL DE VILLE, PARIS

THE VIRGIN AND CHILD BY MICHAEL ANGELO

THE NEST, BY ARISTIDE CROISY



THE BOY ARISTOTLE, BY CHARLES DEGEORGE

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The Wonderful House We Live In, and Our Place in the World

The Little Book of Economics

WE have looked at the wonder of ourselves and the bodies we inhabit; at ourselves, that is to say, as human beings. We have looked at ourselves also as members of society; that is to say, we have looked into the question of Government. One other great thing there is to consider—the whole business of buying and selling and producing things, the science of labour and wealth which we call Economics, from the old Greek word Oikonomia, which meant the law of the household, and what we are now to do is to try to understand how people get a living, and how the great communities of people called nations prosper by creating and exchanging wealth. Civilisation is built up on commerce. Long before the politicians talked of a League of Nations the business men had made one, and the great Business League of Nations has been the foundation of the common prosperity of mankind. It is well that we should try to understand the principles that lie behind it all.

WEALTH AND WHAT IT IS

ECONOMICS is the practical science of wealth. What, then, is wealth?

We commonly talk of wealth as meaning riches, the possession of much property, but in economics we use the word without reference to quantity. A poor man is one who has few things, or little wealth, while a rich man is one who has many things, or much wealth.

Wealth consists of all things which satisfy human wants, which can be transferred or exchanged, and which, because they are limited in supply, have value in exchange.

So we see at once that not everything we need and enjoy is wealth in the sense we are considering. Indeed, some things without which life could not go on are not wealth. Without fresh air to breathe we should quickly perish, but as the air is unlimited in supply to all, it is not economic wealth. We do not buy it or sell it, because its abundance is available to all people. So it is with sunlight, another first essential of life; it is not limited in supply, and human work does not produce it. Sunshine, therefore, is not what we mean by economic wealth.

As soon as human work has to be done to make a thing satisfy our needs, the thing becomes wealth. We call it a commodity, an economic good. Things made available by human effort are, unlike air and sunshine, limited in supply and therefore exchangeable as well as useful. So that wealth, the subject of our study, is something limited in supply, transferable, and useful in satisfaction of human desires.

Sometimes very injurious things are produced and bought and sold. Often goods of inferior quality are made for a poor market. That should not be.

Economics is confined to studying the best means to produce things, the best means to increase commodities, and it is the business of art and education to see to it that the wealth produced is good in kind, and such as will make people happy, comfortable, and cultured. In the same way, when we study engineering we are solely concerned with the making of good engines, and not with the quality of the goods the engines will be employed to make. A good loom may be employed to weave a poor cloth, but that is not the fault of the loom. So economics, when it deals with producing or exchanging commodities has to neglect the quality of commodities and treat them all as wealth, leaving it to other arts and sciences to teach that it is all-important to produce and exchange good and useful articles, and not bad and worthless ones.

We have to learn not only to make goods, but how to make goods *good*, and that is a matter calling for knowledge of the effects of the use or abuse of material things by human beings. For example, a material good for one purpose may be

bad for another, as a drug may be a medicine in small doses, and a poison if taken in quantity.

Economics is not a sordid thing, or to be held in contempt as inferior to the study of the arts or other sciences. It is very important, if the greatest good is to be sought for the greatest number, that we should understand the laws governing the production and distribution of wealth. If we do not understand we are only too likely to make big mistakes and to bring suffering on many people. Strange as it may seem, it is true that nations have, through lack of understanding of economic principles, made great mistakes in government which have made millions poorer than they need have been. The study of economics, too, is becoming increasingly important because getting a living is becoming more and more complicated and because the relation of occupations to the general welfare is not clear.

THE SERVICES OF OTHERS THAT HELP US TO ENJOY OUR LIVES

Wealth may and does consist of *services* as well as of commodities. We require for a comfortable living not only food, clothes, a house to live in, furniture, cricket bats, books, and other solid and material things, but the services of our fellows. These services take many forms, such as the carrying of a letter to a friend, which is done for us by the Post Office, or a ride in the train, which we obtain by the services of railway officials; or the enjoyment of a kinema or a play, which we obtain from the services of theatres.

Getting a living was very easy to understand in the old days, up to about one hundred and fifty years ago. Few machines had then been invented, and the things made were for the most part manufactured from beginning to end by individual workers, who, in fashioning a boot or other article, performed every necessary process. The greater part of trade was local, and people knew what was to become of the food they were raising, or of the articles they were making.

Now we have changed all that. Many people nowadays do not consume any part of what they make themselves. Millions of workers spend their lives, not in making complete things, but in making parts of things. We cannot too earnestly consider this part of the subject, for its relation to the effective making of wealth is all-important.

As primitive man developed slowly into the social, civilised human being of today, his wants increased with knowledge and he found that he could increasingly satisfy his wants by the *Division of Labour*.

Among savage peoples—and these still exist in some parts of the world, living exactly as our own forefathers lived thousands of years ago—little sharing-up of work is to be found. The savage directly satisfies his own needs by his own efforts. He hunts, or fishes, and makes for himself the tools or weapons customary to his race.

HOW THE DIVISION OF LABOUR HAS HELPED THE WORLD FORWARD

Among the intelligent races of the world there soon sprang up the beginnings of a more complex life. It was found that more wealth could be enjoyed by all if some persons devoted themselves to special jobs, and learned to do them with great facility because of that devotion. So one man was a blacksmith, another a shepherd, another a maker of bows, another a fashioner of armour. Men came to follow definite and particular trades as their callings, and they learned the advantage of exchanging their productions for the productions of others, thus obtaining the satisfaction of their wants in greater measure by sticking to one trade and calling on other trades to serve them. Thus the divison of labour became established in its elementary form.

With the introduction of machinery, which took place in the second half of the eighteenth century, the division of labour became more pronounced. It became advisable to use machinery in the places where there was plenty of coal to heat the boilers in which steam was raised to drive the engines. Coal is so heavy that it is dear to carry, and therefore it is cheaper to manufacture by coal-power near the coal-mines. So those parts of Britain which had coal, chiefly the Midlands and the North, became places where manufacturing was done while the coalless South chiefly engaged in agriculture, and bought iron, and cotton, and woollens from the manufacturing districts.

THE DIVISION OF TRADES AND INDUSTRIES AMONG TOWNS AND DISTRICTS

Then, again, the damp climate of Lancashire made it an especially favourable place in which to spin cotton, and so Lancashire became the biggest maker of cotton goods, and got a living by exchanging cottons and cotton machinery for food and other goods.

For various good reasons other districts specialised in different trades, one town, like Birmingham, chiefly making brassware, while Sheffield devoted itself to steel, Coventry to cycles and motors, Bradford to worsteds, Leeds to woollens, Dundee to jute, Belfast to linen, and so on. So we got a *geographical division of labour*, while in each trade there came to be division as between the various parts of an industry. Thus in Lancashire some towns do spinning and others weaving.

There are industries in which the division of labour is carried so far that one man or woman will for years do nothing more than make the heel of a boot, or the spokes of a cycle. This often makes tedious work, for a working life in such circumstances is merely the doing of the same little thing over and over again all the day and all the year.

Thinking this matter over, we see that *the division of labour resolves itself into combination in labour or Cooperation.* The savage doing everything for himself is a separate economic unit satisfying his own primitive wants by his own simple means.

THE COMPLEX MACHINE OUT OF WHICH SIMPLICITY COMES

The modern worker, on the other hand, is combined with his fellows in a complicated effort to produce wealth, which wins plenty and simplicity out of its very complexity. As the division of labour becomes more complex the individual task becomes more simple.

Adam Smith, who was the father of British political economy, and whose great book, The Wealth of Nations, was published in 1776, described three advantages arising from the division of labour:

1. The increase in dexterity and skill in each particular workman.

2. The saving of time because a workman has no longer to pass from one job to another.

3. The stimulation of the invention of machines to do special things.

As to the first of these, every child has experience. Everyone knows that if we are to become expert in bowling, or in playing the piano, we must give much time to it. The constant practice of a particular thing makes it like second nature, and the person devoted solely to one occupation is far more useful than if he tried to do many things.

As to the saving of time in going from one thing to another, if the worker has to make the whole of an article, or to employ different processes and materials, there is necessarily much time wasted in laying down one job and taking up another, and clearing up after one job and preparing for a different kind of work.

THE WONDERFUL INVENTION THAT CAME OUT OF A BOY'S PLAY

As to the division of labour leading to invention, Adam Smith told the following story of the boy who, being set to open and close the valves of Newcomen's engine, invented an automatic process.

A boy was constantly employed to open and shut alternately the communication between the boiler and the cylinder, according as the piston either ascended or descended.

One of those boys, who loved a play with his companions, observed that, by tying a string from the handle of the valve which opened this communication to another part of the machine, the valve would open and shut without his assistance, and leave him at liberty to divert himself with his playfellows.

One of the greatest improvements that has been made upon this machine, since it was invented, was in this manner the discovery of a boy who wanted to save his own labour.

Adam Smith is even more right on this point now than when he told this story, for of late years the division of labour has led in big engineering works, such as those of Henry Ford, the American, who has built over five million motor-cars, to the *special production of machines to do the simplest things quickly*. So it is also in the boot trade, where a very large number of complicated machines each perform one small process.

HOW WORKING HOURS ARE SHORTENED BY DIVISION OF LABOUR

While there are thus great advantages in the division of labour, there are also some disadvantages.

The chief of these we have already noticed. Work is a great part of life, and when a man has nothing to do for a living but to feed or attend a machine making some simple part, such as punching out pieces of metal, or fixing eyelets in a boot, his life is restricted and his powers narrowed. It is a sort of life which suits some people and does not suit others. The remedy for the monotony is to be found in shorter hours of labour, which enable the individual to find recreation either in sport, or in some form of individual work such as the production

of vegetables, flowers, and fruit in a garden or allotment.

Mr. Henry Ford holds that doing the same thing all the time suits many people, and quotes the case of a man in his great factory who has nothing to do but pick up a gear with a steel hook, shake it in a vat of oil, and turn it into a basket. Little muscular energy is used, because the steel rod is so light. No intelligence is required, for the motion never varies, for the gears come to him in the same place, are given the same number of shakes, and are dropped into the basket, which is always in the same place. Yet the man has been doing this work for eight years and resists every attempt to make him take up a better one. He has saved and invested his money, and is now worth about ten thousand pounds. Mr. Ford also states that after careful inquiry he has not found a single case of a man's mind being deadened by repetition work. Many people, however, differ from this manufacturer's opinion.

THE PRIMITIVE PEOPLES WHO SUFFER MOST IN HARD TIMES

It has sometimes been urged that the division of labour makes trade so complicated that in times of bad trade, or change of fashion, a worker in industry may suffer with undue severity. As a matter of fact, however, the severest sufferings endured by a complex industrial community do not bring such severe privations as have to be endured in an elementary agricultural community in times of distress. The great famines of the world come, not to complex working communities such as ours, but to more primitive peoples, such as those of China or India or Russia.

There is a division of labour not only between persons, between trades, and between districts, but also between nations.

This arises for exactly those reasons which cause different trades within a country to be carried on in different parts of it. Countries, either because of their possession of certain natural resources, or because of climate, or because of special aptitudes in their people, are found to be in a marked degree successful in some particular industries.

This is a very important factor in the wealth of nations. We must not suppose that it is entirely the fault of a country if it is rich or poor. It is as stupid and vulgar to despise a poor country as to despise a poor man. The same nation has at different times in history varied between poverty and riches.

Britain, which was a comparatively poor country, and had apparently poor prospects in the middle of the eighteenth century, was comparatively rich and prosperous a century later. Venice, which was for centuries a powerful World State, is now a city mainly visited for its art treasures.

WHY VENICE LOST ITS GREATNESS AND WHY BRITAIN ROSE TO POWER

These changes are by no means to be attributed solely to human frailty or error; they have largely followed from economic causes. Venice lost her wealth when, through geographical discoveries, she ceased to be the main gateway for the riches of the East. Britain rose from comparative poverty to comparative affluence through the discovery of the use of coal.

Before we leave the meaning of wealth, let us once more remind ourselves of the relation of wealth to life.

The word wealth has a most interesting origin. The Anglo-Saxon word *wela* meant well-being (weal), and was changed later into the Middle English *welthe*, which afterwards became our modern word *wealth*. So, while the science of economics usually relates to the study of wealth as commodities which have value in exchange whatever their purpose, or whether they are good or bad, we must always accompany our economic studies with the consideration of wealth as *making or unmaking human happiness*.

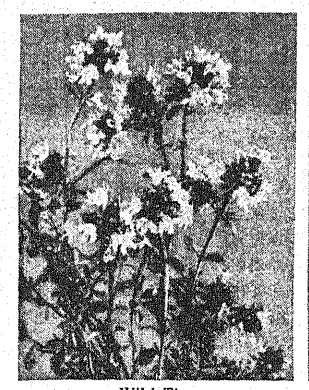
THE GREAT IDEA OF JOHN RUSKIN THAT THE ONLY WEALTH IS LIFE

It was with such thoughts in his mind that John Ruskin wrote, in 1862:

> There is no wealth but life, life including all its powers of love, of joy, and of admiration. That country is richest which nourishes the greatest number of noble and happy human beings; that man is richest who, having perfected the functions of his own life to the utmost, has also the widest helpful influence, both personal and by means of his possessions, over the lives of others.

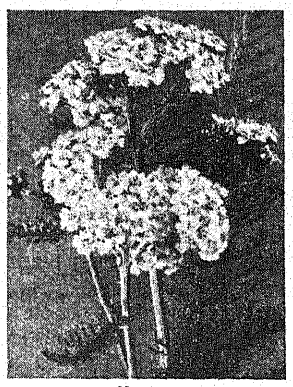
Fortunately, the pursuit of wealth, the increase of commodities, can be made to promote well-being, and to cherish "noble and happy human beings." Certain it is that the liberal production and free exchange of wealth are necessary if we are to secure for a great population the means of enjoying a civilised life.

The Story of the Marvellous Plants that Cover the Earth



Wild Thyme

Common Chamomile



Yarrow

FLOWERS OF THE HEATH

EVERYONE knows that the most striking flowers of the heathlands, those high-lying open spaces on sandy or gravelly soil, are the heaths, the furze, and the broom ; and first among these must be mentioned the ling, or heather.

It is one of the glories of our heathlands, covering large areas, and giving a purple patch to the landscape which delights the artist and the real lover of beauty. It is a low, straggling shrub, rarely more than a foot high, with small, downy leaves arranged in pairs on opposite sides, so that the stem has a four-sided appearance.

The tiny flowers are purplish-pink, often very pale and sometimes white, and they are arranged in dense spikes at the ends of the branches. The flower is fertilised by bees and flies, and also by the wind, and the fruit capsule ripens in autumn and opens in the following spring by four slits, the light seeds being dispersed by the wind. Long after the fruits are ripe the plant goes on blooming ; and sometimes the flowers persist till the next year's buds open.

This plant is quite distinct from the Scotch heather, known also as the bell heath, the purple heath, and the five-leaved heath. It is the commonest of all the British heaths, and is the plant seen in such abundance on the Scottish hills. Whole tracts of country are rendered purple, and there is no other plant that can give such a touch of beauty to a landscape in autumn. The leaves are larger than those of ling and are arranged in threes. The reddish-purple flowers grow in dense, showy clusters.

The way in which this interesting flower is fertilised by the meadow brown butterfly is clearly shown in the coloured plate on page 2048.

But the most beautiful of all the British heaths is the ciliated heath, a very handsome plant with a spike of highly-coloured, rosy flowers. It is found only in the West—Cornwall, Dorset, and Galway.

The cross-leaved heath is a smaller plant than the bell heath, and is distinguished from its relations by having its narrow leaves placed crosswise and its pink flowers in clusters at the ends of the blanches, all turned one way. It is found in the moister parts of the heaths.

The flowers of the heath species hang down, the pollen being thus protected from rain. We often see the petals with holes drilled through them. This is the work of the hive-bees which have visited them, the insects biting through the petals.

The furze, gorse, or whin is a member of the pea family and grows in thick bushes

all over the heath. It is perhaps the most characteristic of all British wild plants, and is particularly suited to the English climate, thriving in neither a very hot nor a very cold area. The many short branches all end in a stout thorn, but the plant is almost leafless, and where there are any leaves they are little more than thorns.

HOW THE FURZE PROTECTS ITSELF BY CHANGING ITS LEAVES INTO SPIKES

If we search round a furze bush we shall find some very young plants that have grown from seed, and these at first have two or three leaves, each divided into three leaflets. It is thought by some botanists that the furze at one time was covered with leaves like these, but that the cattle and sheep were so fond of eating them that in self-protection the plant had to change its leaves into spikes. This simply means that those plants with a tendency to spikiness kept off the animals, and so survived and continued their race, while the furze plants with succulent leaves which attracted the animals were destroyed and passed away from the Earth.

Another theory is that the furze or gorse, living as it frequently does on dry, shallow soil, had to make the most of its moisture, and so ceased producing ordinary leaves which enable much water to evaporate, and instead evolved the spikes which possess little surface. This would be in keeping with the habits of other plants that live in dry or desert areas, like the cactuses; they are often spiny and have no leaves. Probably the real truth is a combination of both theories. It is interesting to know that when furze is grown in moist places it is much less spiny, bears more leaves, and these are broader and thinner than usual.

HOW THE POLLEN OF THE GORSE BLOSSOM IS SHOT OUT OF THE FLOWERS

The flowers of furze, or gorse, are golden, and in form are very much like those of the pea. They are borne on the shoots of last year's growth and appear almost all the year, beginning in the winter and continuing late into the autumn. It is always interesting to watch the bees visiting the newly-opened gorse blossoms, and we can imitate their action and get similar results. By pressing down the keel of the flower we shall cause a kind of explosion, the stamens and style which were curled up inside the keel suddenly flying out and covering our finger, as it would cover the bee, with pollen.

This bursting open is due to the fact that the keel-petals are pressed together above as well as below, and the coiled stamens and style are confined under pressure. Naturally when this pressure is released by the bee or our finger there is an instant uncoiling, and the pollen is shot out. The seed, of course, forms in pods, as it does in all the leguminous plants.

The needle-whin is another member of the pea family. It is a low shrub, not more than a foot high, and has curved branches armed with slender and curved, but sharp, spines. The upper branches are generally free of these spines. The flowers, which are yellow, generally turn green when they are dried.

There are other members of the pea family found growing on the heaths, but only three need be mentioned here. One is the common yellow melilot, a tall, fragrant plant, often growing as high as four feet. The yellow flowers form in long clusters, and the pods, which turn black when ripe, contain one or two seeds. The plant, when drying, smells very much like new hay. A second member of the pea family is the common bird's-foot, a pretty little plant, with spreading stems and tiny cream-coloured flowers, veined with crimson. The leaves are made up of from 13 to 25 downy leaflets.

THE BLUEBELL OF SCOTLAND, DAINTIEST FLOWER OF THE HEATH

The third leguminous plant to be referred to here is the common broom, a near relation of the laburnum. It has many slender upright branches, small leaves, and large yellow flowers which change into black seed-pods.

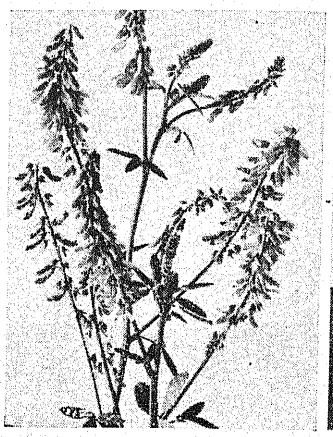
Perhaps the daintiest of the heath flowers is the harebell, or bluebell of Scotland. Its flowers are generally light blue in colour, though sometimes they are white, and the plant, so pretty and attractive, is quite abundant. It is, in fact, the commonest member of the bell-flower family in Europe. Before the flower-stem grows the plant is represented by a rosette of small heart-shaped leaves.

Sheep's bit scabious, another member of this family, has dainty flowers of lilac-blue, and their general appearance with many florets suggests that the plant is one of the composite family. The close resemblance of the flowers, too, to the devil's bit scabious has caused them to be classed as sister plants. The sheep's bit scabious, however, is not a composite,

though closely allied to that family; nor does it belong to the teasel family, of which the devil's bit and field scabious are members. It is one of the bellflower family.

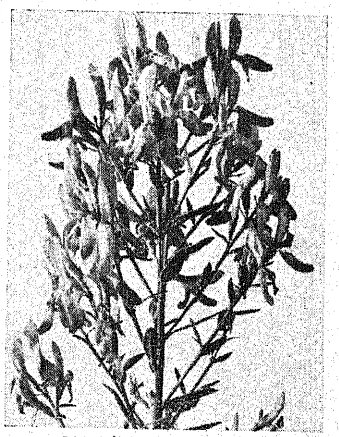
Of the teasel family, in addition to the devil's bit scabious which is a flower of the heath, we find also the wild teasel, and a very interesting plant this is. It is worth growing a plant or two in an odd corner of the garden in order to study its ways. It is a stout plant, which in favourable conditions will grow six feet high, and the tall erect stem is well protected against browsing enemies by numerous prickles. The underside of the leaf, too, is prickly, and the large conical flower-heads are covered with straight bristles, among which, between July and September, the pale lilac flowers may be seen. Humble bees are the fertilising agents in the spread of the teasel.

But the most interesting thing about the plant is its treatment of insects. The prickles not only warn off browsing animals but assist in the defence against honey-stealing insects. When these creatures, and even caterpillars, try to crawl up the stems to the flowers they discover the whole way protected by the prickles, and there are few that find themselves able to negotiate these successfully. Most of them, thrust back by the prickles, find themselves in far greater trouble, for they fall into an ingenious trap from which there is no escape.

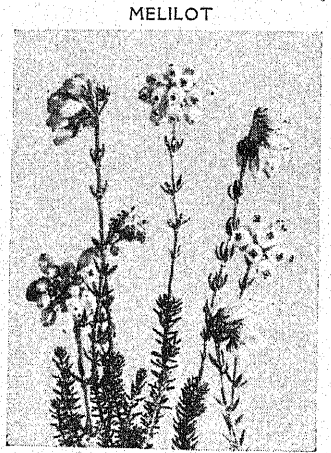


MELILOT

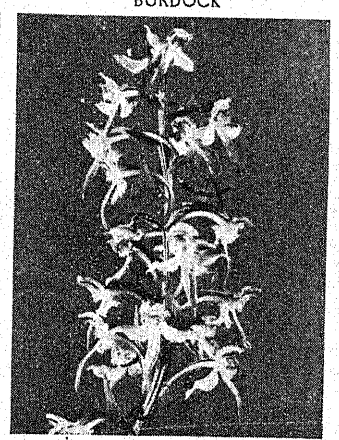
BURDOCK



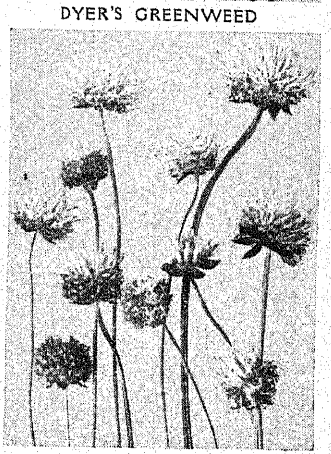
DYER'S GREENWEED



CROSS-LEAVED HEATH



BUTTERFLY ORCHIS



SHEEP'S BIT SCABIOUS

The leaves, which grow in pairs, are united at their bases, and a kind of cup or basin is formed in which water collects from the rain and dew. The crawling insects—ants, earwigs, beetles, and caterpillars—fall into the water and are drowned, and their bodies form a kind of broth which the teasel absorbs by means of wisps of protoplasm in the cup, much in the same way as the root hairs take up nourishment from the soil. The whole

process is not fully understood, but there is no doubt that the teasel benefits by the insect broth which it produces. Sometimes we may see dozens of insects lying drowned in the teasel cup.

A cultivated variety of the common wild teasel, known as the fuller's teasel, has much larger flower-heads, and these, after the flowers have perished, are used for raising the nap of cloth, no machine yet invented doing the work as well.

HOW A THISTLE SAVED CHARLEMAGNE'S ARMY FROM PLAGUE

Many members of the composite family are found on the heath including several of the thistles. Among these the common carline thistle can be distinguished from all the other thistles by the long inner bracts, which are straw-coloured and glossy, and radiate so as to resemble petals. They form a kind of weather-glass, for in dry weather they lie quite flat, but if there is any moisture in the atmosphere they rise up and shelter the florets.

On the Continent the carline thistle is often nailed on the doors of cottages to serve as a poor man's weather-glass. In texture and appearance they are much like the well-known everlasting flowers, and scarcely alter their appearance after the plant is dead.

The name carline has a curious origin. It is said to have been given in honour of Charlemagne, whose army was on one occasion saved from a plague by using the root of the carline thistle as a medicine.

Another thistle of the heath is the slender-flowered thistle, with very spiny leaves that are cottony underneath, and pink or whitish flowers growing in numerous clusters. The common star thistle is a stout, spreading species with rose-purple flowers, and its spines are formed like the old military instrument known as the caltrop, which was used to lame cavalry horses; in whichever position it falls one point always stands upright. The rough sow-thistle, a favourite food of rabbits, is less spiny than those described.

THE PICTURESQUE BURDOCK WHICH IS OFTEN PAINTED BY ARTISTS

Two of the burdocks are found on the heath, the greater burdock, a large, stout plant with wavy leaves, often placed by artists in the foreground of their pictures because of its picturesque character, and the lesser burdock, a smaller and commoner species.

Other composites of the heath are the wall hawkweed, a very variable plant, sometimes smooth and sometimes hairy, with yellow flowers; the smooth cat's-ear, whose leaves grow in a rosette on the ground and whose flowers are also yellow; the smooth hawk's-beard, a variable plant anything between six inches and three feet high, with spear-like leaves and yellow flowers; the mountain groundsel, a similar species to the common groundsel, though larger; and the common wormwood, a bushy plant with silky leaves and many heads of small, dull, yellow blossoms.

Orchid lovers will not be disappointed when searching on the heaths. The greater butterfly orchis, which is similar to the lesser butterfly orchis only larger, is by some botanists regarded as a separate species, while others, finding every grade of size between the two, reckon both species as one. The flowers are sometimes white and sometimes have a greenish tinge, and they grow in a loose spike from three to eight inches long. Few plants are more delicately beautiful, and the flowers have a delicious fragrance. It is perhaps fortunate that the commonness of white and yellow blossoms among our wild flowers causes the butterfly orchis to pass so often unnoticed, or its quaintness and attractiveness might quickly lead to its extermination.

THE GROUND IVY WHICH IS NOT RELATED TO THE TRUE IVY

The labiate family, to which mint and marjoram belong, have their representatives on the heath. One of these is the ground ivy, often called alehoof, a corruption of an old name haihove, meaning hedge-ivy. It is, of course, in no way connected with the true ivy. The ground ivy is a little creeping plant with kidney-shaped leaves and bright blue-purple flowers which cause the plant to be mistaken sometimes for the sweet violet. The whole plant has a not unpleasant aromatic odour, and in some parts of the country the leaves are dried and used for brewing tea. The plant is bitter, and formerly the ground ivy was often taken by brewers as a substitute for hops.

Other labiates include wild, or mountain, thyme, with whorls of deep red or purple flowers; heath thyme, a very similar but less common species, with all its stems ascending; basil thyme, a small bushy and downy plant with violet flowers; common calamint, a larger bushy plant

with broad, downy leaves on long stalks and light purple flowers; white horehound, an aromatic and bitter plant used as a remedy for coughs; and black horehound (not a sister plant, though of the same family) with light red flowers, and downy, wrinkled leaves.

Good-King-Henry, known also as All Good, and Mercury, is a member of the goosefoot family, and its dark green, succulent leaves are in many parts used in the same way as spinach. It is indeed cultivated as a pot-herb in Lincolnshire. The stem is about a foot high, and the flowers grow in clustered spikes.

THE HANDSOME COLUMBINE WITH THE FLOWERS LIKE THE NEST OF A DOVE

We must not forget the handsome columbine, a member of the buttercup family, with its flowers of purple, blue, or white. It cannot be mistaken for any other plant on account of a peculiarity in its blossom, each of the five petals ending in a curved, horn-like spur. In gardens it is cultivated, and its flowers are then variously coloured. The name columbine is from the Latin columba, meaning a dove, and was given on account of a fancied resemblance of its flowers to a nest of doves.

Woad, a relation of the cabbage, is often found on heaths, and is familiar by name because of the blue dye with which the Britons used to colour their bodies. We read some further particulars about woad on page 2938 of this book.

The sweet mignonette of our gardens is always a favourite, and we find the wild mignonette growing on heaths; but there it is scentless, and the plant is not so attractive as the garden variety. In appearance, however, it is very like the cultivated kind, and anyone who knew the one would soon recognise the other. Though individually the yellowish-green flowers are small and inconspicuous they are easily seen when associated in numbers on an erect stem. Dyer's rocket, or yellow weed, is a taller plant of the same family.

THE BRIGHT YELLOW FLOWERS OF THE COMMON ROCK-ROSE

The common rock-rose is a beautiful little undershrub with a short, woody stem, very much branched, and short-stalked leaves that vary greatly in shape. The bright yellow flowers grow in loose clusters. Except for four other species of local occurrence, it is the only representative of its order growing wild in Britain.

Two of the violets are common on the heath, the dog violet and the hairy violet. The first of these was given its name as a term of reproach on account of its lack of odour. The blossoms, however, are quite attractive. The hairy violet, as its name implies, has spreading hairs which are very conspicuous on the leaf-stalks. Its flowers are scentless, and vary from pale violet to white. It is most common on chalky soils.

The common mallow is a very showy plant of the heath, its lilac flowers, veined with crimson, standing out conspicuously against the deep green of the foliage. The pollen is a very interesting object for the microscope. Highly magnified the grains are seen to be fitted with tiny prickles, and when the bees visit the flowers the pollen adheres to the insects, and is carried to another flower.

A member of the rose family familiar on heaths is the common tormentel, a small plant with much-divided leaves and yellow flowers. The pink family is represented by the lesser stitchwort, a straggling plant, with very narrow leaves and small white flowers.

The black nightshade, a sister plant of the woody nightshade, or bittersweet, rarely grows tall. The flowers are white and drooping, and the fruit which succeeds is in the form of a small, round berry, usually black but sometimes green, yellow, or a dull red.

THE FLOWER OF MANY VARIETIES AND FORTY NAMES

Another name for the plant is black solanum, and it is one of the most widely spread weeds in almost every part of the world except the extreme north and south. It is not, however, very common in Scotland. So much does it vary in warm countries that it has been described under forty or more names.

The borage family is found on the heath, three species being particularly common. One is the common borage itself, a bristly plant with large, bright blue flowers. Another is the common hound's-tongue, a stout plant with lurid purple flowers that develop into large flattened fruits covered with prickles, which cause them to adhere to the coats of animals or the clothes of people. The plant has a mouse-like smell that is very disagreeable.

The small bugloss, a branched, prickly plant with clusters of small blue flowers, is also a borage.

SOME PEOPLE OF TURKEY TODAY

A YOUNG ONION SELLER

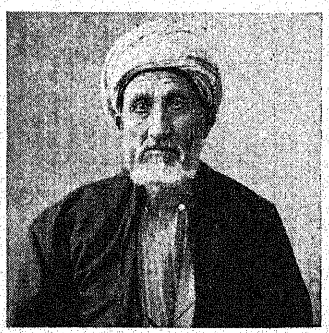
KEMAL PASHA AND HIS WIFE

AN APPLE SELLER

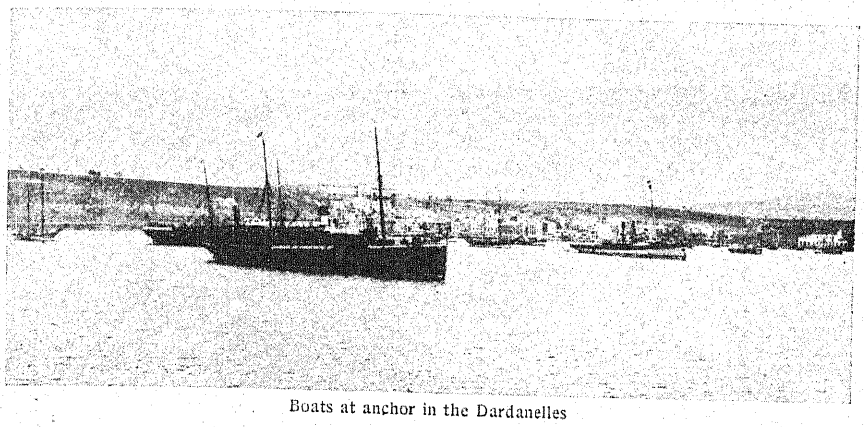
BEGGARS AT THE ENTRANCE TO THE SULEIMAN MOSQUE

A VEILED LADY OF TURKEY

TURKISH WATER-CARRIERS



CAPTAIN OF A SAILING SHIP



Boats at anchor in the Dardanelles

THE RISE AND FALL OF TURKEY

THE rise of the Turkish Empire, if we consider the forces working in the minds of men which made it possible, takes us back to the last war between the Persians and the Byzantine Empire.

At that period (it was early in the seventh century) a young man belonging to an Arab tribe was growing up in Arabia. He was a reformer, for he taught the Saracens to give up idolatry and form themselves into one nation. His new religion taught that there is but one God, that both the Jewish and Christian religions had come from God, but that he, Mohammed, was sent to teach a more perfect faith, and force it on the world.

Mohammed sent a sort of circular letter to the kings of the Earth calling on them to embrace this faith, and the Persian king answered that he would put the Prophet in chains when he had time. Heraclius, the Byzantine emperor, made no direct reply to the letter, but sent some small presents.

It is almost impossible for us to realise the force and fury with which the followers of Mohammed, catching the fire of his tremendous enthusiasm, set forth to conquer the world. They did not fear death ; they were ready to give up their lives for what they believed, for they firmly believed they would then be sure of happiness in the world to come.

It was this fierce spirit in the Saracens (for so they were called as they spread, conquering, far and near) which caused them to be so greatly dreaded. Province after province fell to them, including Jerusalem. The magnificent walls of Constantinople saved that city for another three centuries, but nearly all the time the emperors of the East were engaged in fighting the followers of the Prophet.

During these years the Roman and Greek churches were drifting wider apart. Latin ceased to be a common tongue, and the Roman element became less strong. Greek language and literature were more widely cultivated, and many scholars were at work in monasteries and schools, often in remote spots out of the way of the turmoil of war.

For, besides the struggle with the Mohammedan Saracens and the Turks who followed them, the empire was beset with wild tribes pressing in from the north. Amongst these tribes were the Seljouk Turks from beyond Persia, who, having become Mohammedans, gained Palestine and Asia Minor. In Jerusalem was a treasured piece of wood believed to be a part of the Cross, and to rescue it Crusades were

started in Western Europe, and went on for many years. But, so far from being able to to rescue the land sacred to Christians from Mohammedan power, the Christian people of Western Europe were busy quarrelling with one another, and the Turks saw the opportunity for attacking Constantinople, the seat of Christian authority in the region of civilisation which drew its inspiration from Greece.

THE GATHERING OF INVADING TRIBES INTO THE GREEK CHURCH

Unhappily, differences arose between the Churches of the East and West, and so it came to pass that, as Christianity spread over Europe in the centuries when the wild peoples were settling down, these peoples joined either the Western Church, with the Pope as its head, or the Eastern or Greek Church, ruled by the Patriarch of Constantinople.

We have seen that the English, French, and Germans were converted by missionaries from Rome; but the Slavonic peoples, and others of different stock who became very much mixed up with the Slavs, had most to do with the Eastern Empire, and so took their Christianity from the Greek Church. Chief among these peoples were the Bulgars who settled between the Danube and the Balkans, and whose kingdom now reaches over the southern slopes of the mountains, and the Serbs, who settled to the west of them in Serbia. Many were the struggles between the Eastern emperors and these settlers on the northern boundaries of their dominions, who eventually became Christians associated with the Greek Church, but still with dividing jealousies.

Constantinople in those days was becoming more and more a City State instead of the heart of an empire, as it had been in earlier years when it became the seat of Christianity in the East.

THE THRILLING JOURNEY OF A PRINCE OUT OF ASIA INTO EUROPE

At this time a fresh incursion of Turks, called Ottomans, from their leader Othman, joined in the contest between Mohammedanism and Christianity with an intense vigour, and secured a firm foothold in Asia Minor, on the opposite shore of the Bosphorus to Constantinople. From this point of vantage it was not difficult to cross into Europe.

The story of how the Turkish Crown Prince with eighty men crossed into Europe on rafts is most thrilling. At the narrowest part of the Dardanelles, no wider than a good-sized river, they succeeded in planting a fort, the foothold of the Ottoman Turks in Europe. Before many years had passed towns, villages, and valleys fell to the conquerors—even Adrianople, the second city of the empire fell. Several causes helped. The rulers of the old empire were weak and foolish; the Balkan Christians were fiercely destroying one another while the hour of their doom was coming nearer; and the other peoples around, the Venetians, Genoese, Hungarians, Poles, Austrians, were too disunited, or too busy with their own affairs, to join forces against the invaders at their gates.

Sigismund of Hungary headed a force when the Turks burst through the Balkans; but they were too strong for him, and, besides, he was much taken up with persecuting John Huss, the brave Protestant leader of Bohemia. Later the courageous John Hunyadi, with the Poles, defeated the Turks, but was afterwards in his turn defeated at Kossovo.

THE SONS OF THE CONQUERED PEOPLES WHO FOUGHT FOR THE TURKS

The Turks now determined to have Constantinople for their capital, so all the time they were increasing their ships and their army. One way of increasing the strength of the army was to make the conquered peoples give up the finest of their boys. These boys were brought up as Mohammedans, and drilled to fight against their own countries. These troops were the famous Janissaries, or new soldiers, who helped so largely to destroy the Eastern Empire, and gained so much power over the sultans.

The ruins of the walls of Constantine's city show how strong were the defences when the last emperor stood bravely in the breach against Mohammed II. He knew the end was near, and at midnight had taken the Sacrament in the beautiful church of St. Sophia. Then, after a short rest in his ruined palace, he sadly mounted his horse and rode away amid the sobs of the crowd to the post of danger.

Before long the besiegers made their entrance over his dead body. The streets were deserted, for the people had gathered in St. Sophia in frantic prayer, expecting a miracle to save them. Alas! a piteous wailing went up as they were dragged out to be killed, or were sent into slavery, and

then, only a few hours after the celebration of Constantine's last act of worship, the loud voice of the Mohammedan crier rang out through the huge building: "God is great, and Mohammed is His prophet." It was on May 29, 1453, that the great church of Christianity passed into the hands of its enemies.

St. Sophia still stands in its grandeur, and many of its beautiful mosaics tell of its Christian past, though for more than four centuries it has been used as a Mohammedan mosque.

THE FLIGHT OF THE LEARNED MEN AND THE BIRTH OF THE NEW LEARNING

This conquest by the Turks of the old Greek Empire, and particularly the fall of Constantinople, caused the flight of many students and learned men, with the manuscripts they so much loved, towards the West, chiefly to Italy. In Florence Lorenzo the Magnificent gathered round him men who were interested in the old Greek manuscripts and in the wonderful old Greek art. The knowledge of these writings and of this art had been shut up so long in the East that when the study of them was revived it was called the New Learning and the New Birth of Art—or the Renaissance, as we say. Many scholars from all over Europe journeyed to Italy in those days, and returned to their own countries to fire others with enthusiasm for the study of Greek and its wonderful literature. "I have given my whole soul to Greek learning," wrote Erasmus, the friend of More and Colet, "and as soon as I get any money I shall buy Greek books; and then I shall buy some clothes."

THE MIGHTY EMPIRE OF THE CRESCENT THAT STRETCHED ACROSS EUROPE

During the years that followed the taking of Constantinople the Crescent on the Ottoman banner shone triumphantly over an immense and powerful empire from the Danube to the Euphrates, from the Caspian Sea to the Straits of Gibraltar. The discipline and unity of purpose of the Mohammedans prevailed against the jealousies and quarrels of the so-called Christian kingdoms. Deeds of daring and heroic resistance were not wanting, and there were terrible revolts and massacres; but so bitter were the jealousies between Christian rulers, so intense the rivalry between the East and West branches of the Church, that not only was there no united front against the followers of Mohammed, but on several occasions Christians sought alliance with them against their fellow Christians.

Among the Turkish rulers—who came to be called sultans—were many strong and clever men. One of the greatest was Mohammed II, who had ridden over Constantine's body and up the nave of St. Sophia on that eventful day in May, 1453. He ruled for thirty years, and conquered Serbia, Bosnia, and Greece.

Suleiman the Magnificent lived at the same time as Henry the Eighth of England. An old German song shows the terror which this "Grand Turk" cast over what was called the Holy Roman Empire. It says: "The furious Turk has lately brought great forces into Hungary; from Hungary he has quickly entered Austria in the light of day; Bavaria is his for the taking; thence he presses onward and may soon come to the Rhine, for which cause we have no peace or rest."

A LONG LINE OF WEAK AND CRUEL RULERS OF THE CONQUERING TURKS

It was said of Suleiman that, while he ruled, sword and pen were never dry, so continually was he fighting, and so great was the number of writers in his day. It was he who swore he would take no rest till the prayer of the Prophet rang out from the tower of St. Stephen's Church in Vienna. But his quarter of a million Turks were obliged to retire from the gallant city, and so the spread of the Turkish power in the valley of the Danube was checked for a while.

A few years after Suleiman's death, at the great naval battle of Lepanto, a limit was set to Turkish power in the Mediterranean and on the sea generally. After this came a succession of weak and cruel rulers, and under them there were wars with the Persians, mutinies of the Janissaries (who had become a very rich and strong body), and other disasters. Ottoman power rose again for a time under the able rule of a family named Kiuprili, many of whom acted as prime ministers, or chief viziers. It was under one of these men that the Turks determined to try their fortune again at Vienna. Enormous preparations were made, and alliances were renewed with most of the surrounding nations, so that the Emperor should be left without help.

The vast hosts advanced, spreading terror and desolation in their way. Then they encamped before Vienna. The

peasants had crowded into the city from the country round. There was but a small garrison, the old walls were out of repair, and the Turks, the best engineers and artillerymen in Europe, soon undermined them and drove off the Emperor's soldiers.

How the Poles Arrived in Time to Save Vienna

At last, after two terrible months, when it seemed only a question of days before the Turkish general would gain the glory of receiving the submission of the devoted city, a troop of Poles was seen hastening down the vine-clad slopes, shouting at the top of their voices, "Sobieski for ever!"

The terror of the name of John Sobieski, the gallant King of Poland, who had inflicted such terrible defeats on them before, filled the Turks with panic, and they fled on all sides, leaving immense treasure behind them. The siege was raised, and the Turks were driven out.

At this time the Turks were masters of the whole of the Balkan Peninsula; but from that September day in 1683, thanks to John Sobieski and his gallant Poles, the tide of Turkish power in Europe began to ebb. No more did the sultans threaten and terrify the whole of the Christian world, although they continued to have some successes and for many years kept in bondage and misery all the nations of the Balkan Peninsula.

The Turks were driven out of Hungary; many towns and islands in the Mediterranean were taken from them; Greece passed for a time to the Venetians before entering on its long, final struggle for freedom against the Turks. The Russians captured Azov, on the Black Sea, and by degrees its northern shore passed into their hands. Ships on the Black Sea meant power to threaten Constantinople.

The Struggle of the Small Nations Against the Turkish Power

With the growth of Russia's power came the right to interfere in the provinces north of the Danube, particularly Moldavia and Wallachia, which were dependent on Turkey. This country's frontier fell back to the River Dniester, then to the Pruth, and for many years the old kingdoms were alternately under Russia and Turkey.

The growth of Russia had a great effect in restoring to power the Greek Church. As the Church of a chief Power in Europe it bound that Power in close sympathy with its poorer brethren of the smaller and despised nationalities, and gave many chances of encouraging their revolts.

The Western nations, in love with liberty, also gave their sympathies to the oppressed Balkan peoples, and often gave help that was better than sympathy. The story of the two hundred years before 1918 was a story of nation after nation striving to gain freedom from its Mohammedan rulers.

At the beginning of that period Turkey held all the Balkan Peninsula, Hungary to the summits of the Carpathians, all that is now Rumania, part of the Russian Ukraine, the Crimea, the northern slopes of the Caucasian range, part of Georgia, all Asia Minor, nearly all of Armenia, part of Kurdistan, Mesopotamia, Palestine, Arabia, Egypt, Tripoli, Tunis, and Algiers, with Albania, Bosnia, Herzegovina, Dalmatia, and part of Croatia.

How the Great War Broke the Power of Turkey in Europe

Two hundred years later, just before the Great War, she had lost Algiers and Tunis to France; Rumania, Serbia, Greece, and Bulgaria were independent; Egypt was only under a sovereignty that had no meaning; Bosnia and Herzegovina had passed to Austria, and only Macedonia and Thrace in Europe, and Asiatic Turkey, with Palestine and Mesopotamia, remained Turkish; while Russia had annexed a part of Armenia and all lands once Turkish in the Circassian district.

All these losses were regarded by the world at large with thanksgiving, for it had become clear that as a governing race the Turks were an impossibility. They had plenty of bravery available for the defence of their possessions, but no judgment or energy, tolerance or business tact to help them to govern. Their contempt for the people outside the Mohammedan faith made any part of their dominion liable to be drenched with the blood of massacres.

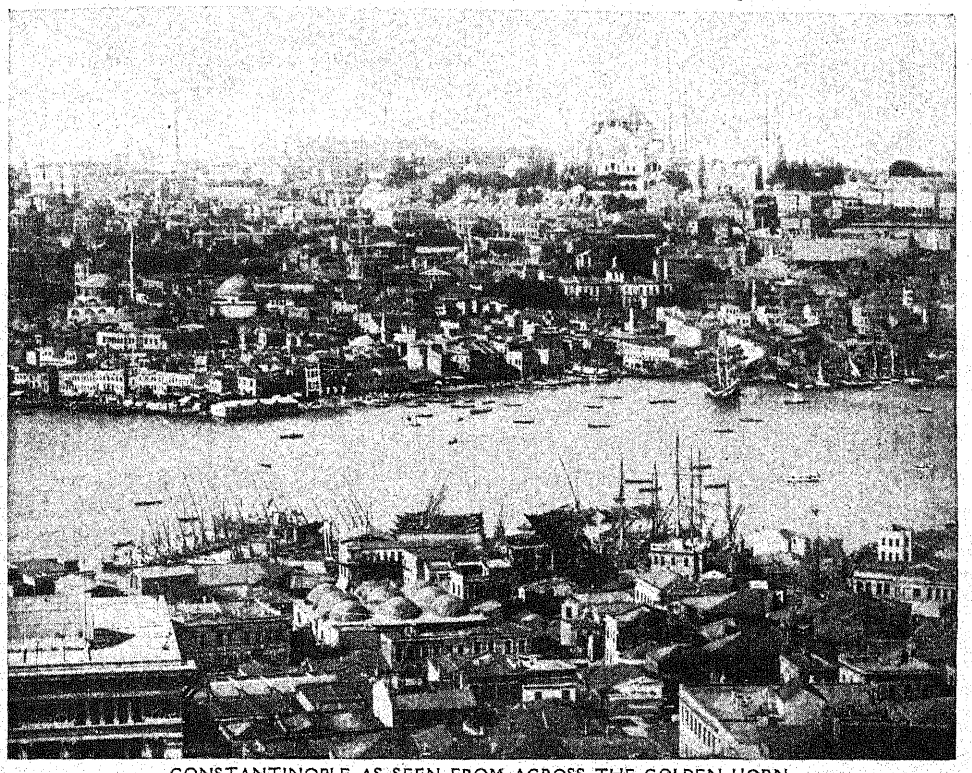
The same story of massacre was repeated whenever there was a sign of restlessness—in Bulgaria, in Armenia, anywhere where a thinning of unfriendly people seemed desirable to the Turkish mind. No intervention by foreign governments made any difference, for the Turk would make the fairest of promises and then act directly contrary to them wherever religious bigotry or national feeling

became involved. Each country that escaped from his sovereignty did so with tumultuous rejoicing.

When Germany's ambition turned the Kaiser's thoughts to the East he saw in Turkey a possible helper, and the officers of the Turkish army who had studied the arts of war in Germany were impressed by the military pompousness of that nation, which appeared to them irresistible. Accordingly, when the Great War broke out, these men linked Turkey with the fate of Germany. There never was any reason for supposing that they represented the real opinion of the Turkish Court, or of the average Turk, who had long regarded the British as friendly advisers; but the Germanised Turkish officers controlled the army, and Turkey became Germany's ally in the Near East.

But the help given by Turkey to Germany was only indirect, for after a Turkish attack on Egypt, Great Britain struck at her along three lines of advance, and all Turkey's strength was needed to ward off a British movement from India by the Persian Gulf on Baghdad, the capital of the Mesopotamian plain; an advance from Egypt on Palestine; and an attempt to reach Constantinople from the Mediterranean through the Dardanelles and over the Gallipoli Peninsula.

The Mesopotamia advance was finally successful. The British Gallipoli attack was repulsed after heroic bravery had been shown, and terrible losses suffered on both sides; and the blow through Palestine, under the dashing leadership of General Allenby in 1918, succeeded so completely that Turkey followed Bulgaria in unconditionally surrendering.



CONSTANTINOPLE AS SEEN FROM ACROSS THE GOLDEN HORN

The territorial losses to Turkey through her support of Germany were Mesopotamia, which was formed into an independent Arab kingdom, known as Iraq, with Feisal as king, but temporarily under the friendly guardianship of Great Britain; the Arab kingdom of the Hejaz, in Arabia; the Emirship of Transjordania under Abdullah, brother of Feisal, and son of Hussein, King of the Hejaz; Palestine, administered by Great Britain under a mandate from the League of Nations; Syria and Lebanon administered by France under a mandate; and the part of Thrace west of the Maritza River ceded to Greece.

The losses were considerably greater at first, for Smyrna and the district around were allotted to Greece, and that country, with an ambition beyond her strength, advanced eastward till Greece occupied Asia Minor beyond the highland borders of Anatolia. This vigorously aroused the patriotism of the Turks, and, advancing from their Anatolian capital of Angora, for Constantinople was occupied by British, French, and Italian forces, they completely routed the Greeks in September 1922, and swept them out of Asia Minor.

TURKEY AS A REPUBLIC BEGINS TO FOLLOW EUROPEAN WAYS

The Peace which followed this rout of the Greeks found the Allies disunited, and so gave Turkey Constantinople, and re-established them in Eastern Thrace with renewed possession of Adrianople. The Sultan was dethroned, and retired from Turkey; and a Turkish Republic was established with Mustapha Kemal Pasha as President, and Angora as its capital.

The Government of the new Turkey coming into shape as this book goes to press, is based on a democratic constitution, with a single House of Assembly to which national affairs will be submitted, and the aim is to bring Turkey into line with modern life and its improvements.

Evidences that support this programme are the greater freedom given to women, and proposals for the abolition of polygamy—the marrying of many wives by one man. Many educated Turkish women are going about unveiled, and the wearing of European garments is being allowed to those women who have knowledge of western life.

The revived and consolidated Turkey, beginning a new life while this is being written, consists of Eastern Thrace in Europe, with the great historical cities of Constantinople and Adrianople as its populous centres. Constantinople has been one of the great cities of the world for nearly 1600 years. It has a population of more than a million, and no city on the earth has a greater variety of the races of mankind in it.

CONSTANTINOPLE—THE ANCIENT GATE BETWEEN EAST AND WEST

Constantinople's position as a link between the Eastern and Western parts of the Old World of history, and its command of the passage between the Black Sea and the Mediterranean, will always give it high importance. Adrianople, with a population of 80,000, the centre of a very fertile district, was more important in the days when Turkey governed the Balkan peninsula. It was the capital before Constantinople fell into Turkish hands.

The River Maritza is the boundary of Turkey in Europe westward, and the Bulgarian frontier is the northward boundary. Midia is the Black Sea port for the Adrianople district. Both in Thrace and in Asia Minor the Turks have expelled the Greek population, and apparently have started a plan of reserving Turkey for the Turks, though the Western trading nations are welcomed.

The Turkish Republic in Asia Minor is a solid block of country chiefly mountainous, and the natural home of the Turkish race. The only part of the frontier in dispute is where Kurdistan joins Mesopotamia to the north-east of Mosul. The Mosul district, which is rich in oil, is held jointly by the British and the Arab government, and the claim of the Turks to it through the Kurds who inhabit the neighbouring hills is still unsettled when this book is being printed.

THE NATURAL WEALTH OF TURKEY THAT IS WAITING TO BE DEVELOPED

Turkey is an agricultural country. Its chief exports are dried fruits (particularly raisins), carpets (its one considerable manufacture), and tobacco and wool. It has valuable unworked minerals, including copper, silver, and lead. Petroleum is found here and there. Cotton, coffee, and opium are produced chiefly for home consumption. The Turks themselves are not a business people, but are for the most part quiet and unambitious agriculturists.

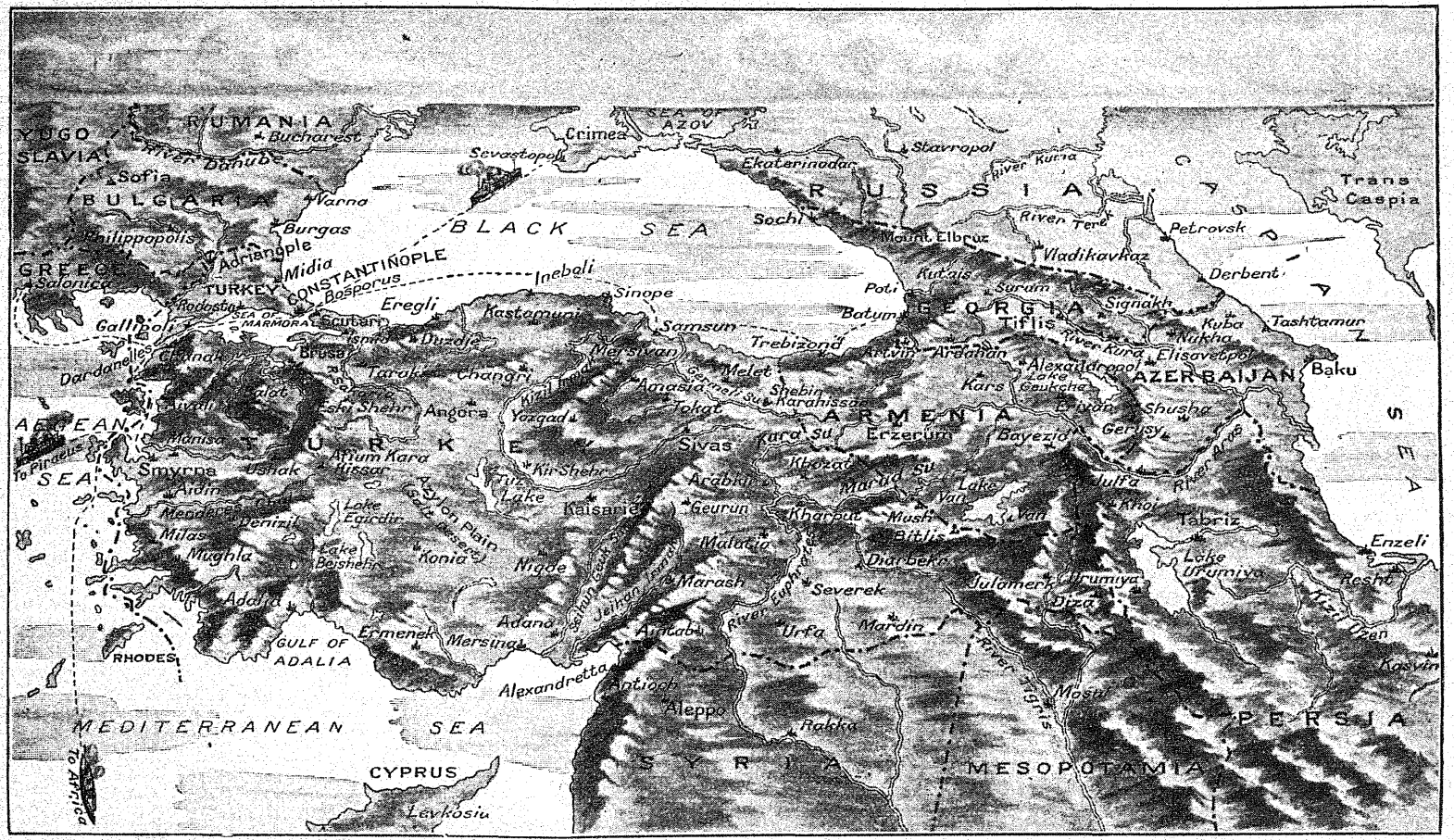
The chief towns are Smyrna, which had a population of 200,000 before the last war; Broussa (the capital before the Turks entered Europe), 100,000; Scutari, 80,000, opposite Constantinople; Sivas, 65,000; Kaisarieh, 70,000; and Konia, 45,000. Trebizond, with 60,000 people, is the chief port on the Black Sea.

Under the stress of the world's disfavour, because of their harsh treatment of subject races, this daring and warlike people have roused themselves to an unexpected display of energy, and have shown that they have not lost the qualities which once made them conquerors. As they are now compactly gathered within the lands that are rightly their own, the good wishes of other nations will follow if they show in their peaceful development the manly spirit that is theirs in war.

PICTURES AND MAPS OF TURKEY

ST. SOPHIA, THE CHRISTIAN CHURCH WHICH IS NOW A MOHAMMEDAN MOSQUE

THE FACE OF TURKEY AND THREE OF ITS NEIGHBOURING COUNTRIES

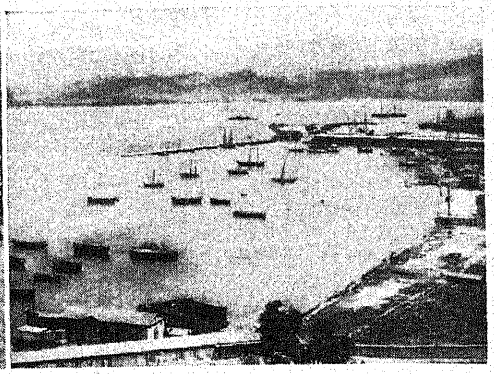


THIS MAP OF TURKEY, WITH THE NEW INDEPENDENT COUNTRIES OF GEORGIA, ARMENIA, AND AZERBAIJAN, SHOWS THEIR MOUNTAINS, RIVERS, AND CITIES

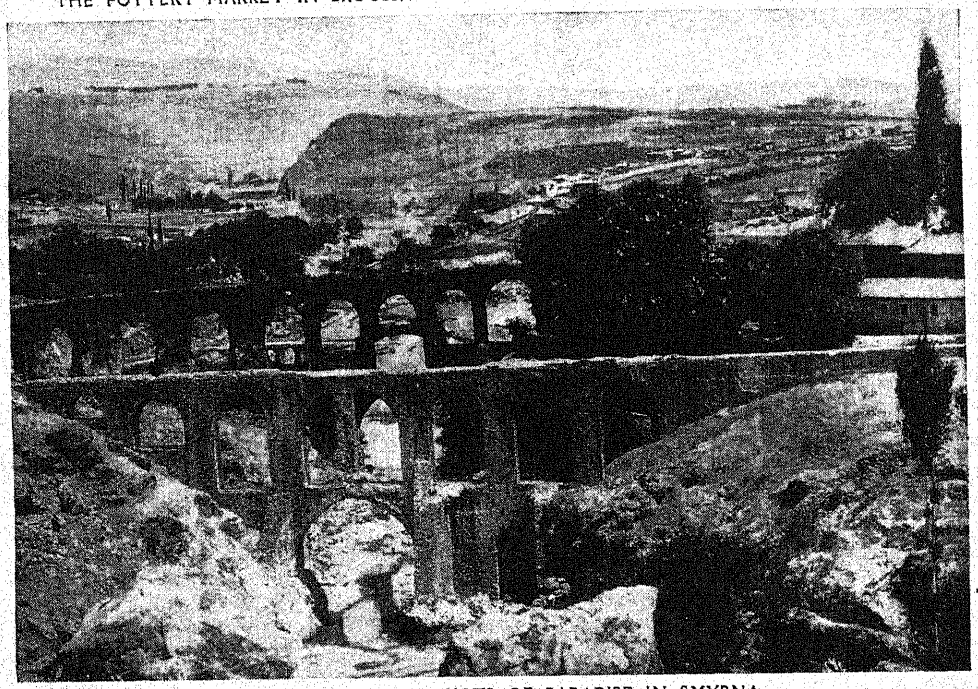
THE INDUSTRIES OF TURKEY, GEORGIA, ARMENIA, AND AZERBAIJAN

THIS MAP SHOWS THE INDUSTRIES OF TURKEY AND THE BLACK SEA COUNTRIES, TOGETHER WITH THEIR PLANT AND ANIMAL LIFE

THE POTTERY MARKET IN BROUSSA



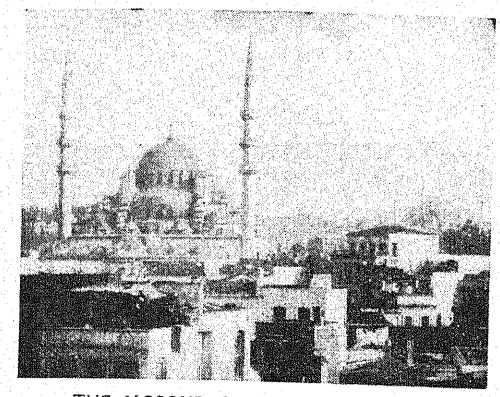
THE HARBOUR OF SMYRNA



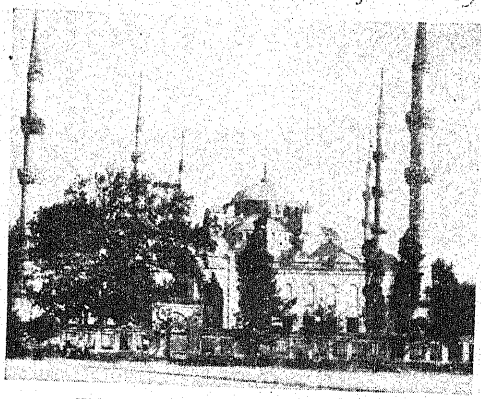
THE ANCIENT AQUEDUCTS OF PARADISE IN SMYRNA

A CAMEL CARAVAN IN THE STREETS OF SMYRNA

THE TOWN OF BROUSSA, IN THE SHADOW OF MOUNT OLYMPUS

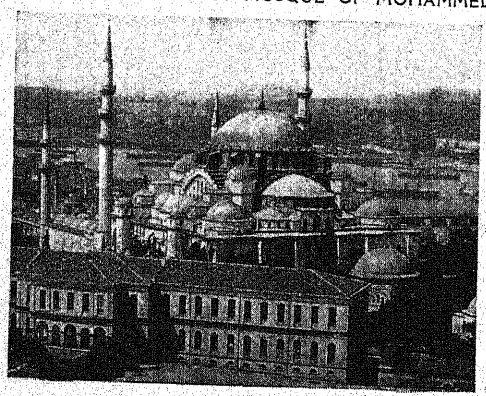


THE MOSQUE OF SULTAN VALIDEH



THE MOSQUE OF SULTAN AHMED

THE GORGEOUS MOSQUE OF MOHAMMED THE CONQUEROR, IN CONSTANTINOPLE

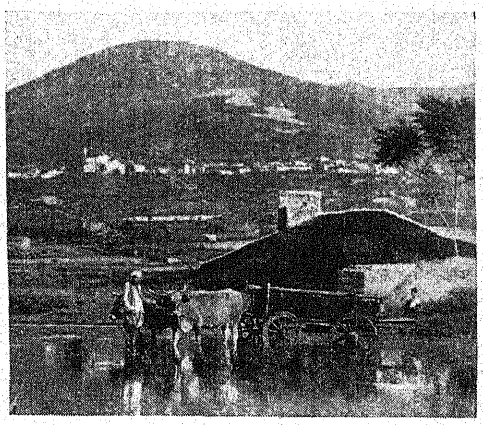


THE MOSQUE OF SULEIMAN

THE MOSQUE OF SULTAN BAYAZID THE SECOND

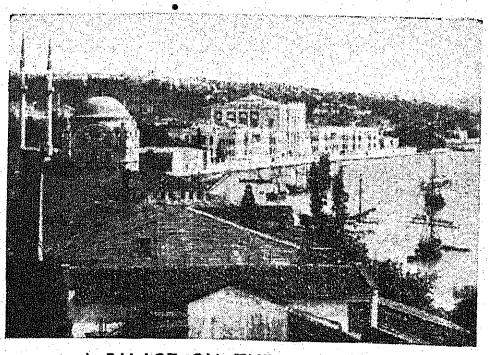
THE ROOFS AND MINARETS OF SMYRNA WITH THE ACROPOLIS IN THE BACKGROUND

THE BATHS OF KUKURTLI AT BROUSSA



AN OLD BRIDGE AT BROUSSA

THE SERASKERAT GATE AND TOWER IN CONSTANTINOPLE



A PALACE ON THE BOSPHORUS

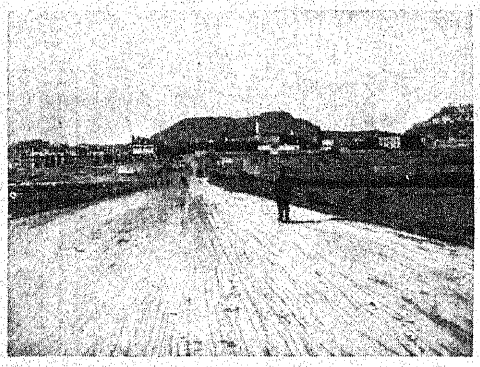
GALATA BRIDGE, CONSTANTINOPLE

THE GOLDEN HORN AND THE CROWDED HOUSES OF CONSTANTINOPLE

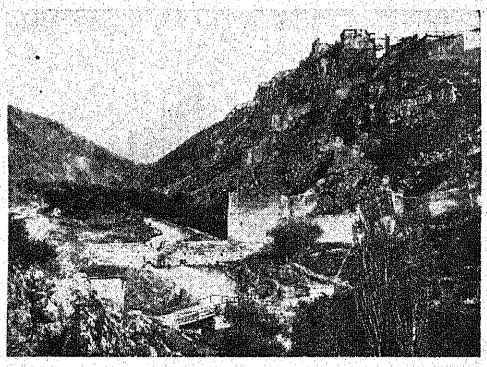
YUKSEK-KALDIRIM, A STREET OF STEPS LEADING TO THE TOWER OF GALATA

THE TOWER OF GALATA IN CONSTANTINOPLE

A SELJOUK MOSQUE IN ASIA MINOR

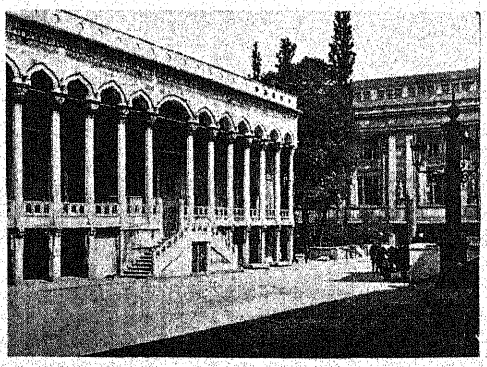


A NEW ROAD INTO ANGORA



THE OLD WALLS OF ANGORA

THE STONE HOUSES OF ANGORA



THE NATIONAL MUSEUM IN CONSTANTINOPLE

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One Thousand Poems of All Times and All Countries

A Ballad of the Borderland

THE beautiful country on both sides of the Cheviots, known as the Borderland, is a region of green hills and valleys where the waters of many streams make music as they flow. This Borderland has always been famous for its legends, and many ballads have been collected in which these legends are told. James Hogg, the shepherd poet, gave a new dress of poetry to one of these old legends in his famous ballad of Kilmeny. The story was told before the poet heard it, and he retold it in the musical ballad form. Kilmeny is a lovely girl lost in the woods, and for seven years her mother mourns her. Then one day she comes home. She is strangely quiet, though, if anything, more beautiful than ever. She had been stolen away by the fairies as she was so pure and lovely. Then her heart had yearned for her old home, and the fairies let her go back. But after a month and a day Kilmeny wanders again to the greenwood, and, lying down there, the fairies bear her away where everything is as pure and beautiful as Kilmeny herself, and she returns no more.

KILMENY

BONNY Kilmeny gaed up the glen;
But it wasna to meet Duneira's men,
Nor the rosy monk of the isle to see,
For Kilmeny was pure as pure could be.
It was only to hear the yorlin sing
And pu' the cress-flower round the spring,
The scarlet hyppe, and the hindberry,
And the nut that hung frae the hazel tree,
For Kilmeny was pure as pure could be.
But lang may her minny look o'er the wa',
And lang may she seek i' the greenwood shaw;
Lang the laird of Duneira blame,
And lang, lang greet or Kilmeny come hame!

WHEN many a day had come and fled,
When grief grew calm and hope was dead,
When Mass for Kilmeny's soul had been sung,
When the bedesman had prayed and the deadbell rung;
Late, late in a gloamin', when all was still,
When the fringe was red on the westlin hill,
The wood was sere, the moon i' the wane,
The reek o' the cot hung over the plain,
Like a little wee cloud in the world its lane,
When the ingle lowed with an eiry leme,
Late, late in the gloamin' Kilmeny came hame!

KILMENY, Kilmeny, where have you been?
Lang hae we sought baith holt and dean;
By linn, by ford, and greenwood tree,
Yet you are halesome and fair to see.
Where gat you that joup o' the lily sheen?
That bonny snood o' the birk sae green?
And these roses, the fairest that ever were seen?
Kilmeny, Kilmeny, where have you been?

KILMENY looked up with a lovely grace,
But nae smile was seen on Kilmeny's face;
As still was her look and as still was her e'e
As the stillness that lay on the emerald lea,
Or the mist that sleeps on a waveless sea.
For Kilmeny had been she ken'd not where,
And Kilmeny had seen what she could not declare;
Kilmeny had been where the cock never crew,
Where the rain never fell and the wind never blew.
But it seemed as the harp of the sky had rung,
And the airs of heaven played round her tongue,
When she spake of the lovely forms she had seen
And a land where sin had never been:
A land of love, and a land of light,
Withouten sun, or moon, or night;
Where the river swa'd a living stream,
And the light a pure and cloudless beam.
The land of vision, it would seem,
A still, an everlasting, dream.

IN yon greenwood there is a waik,
And in that waik there is a wene,
And in that wene there is a maike,
That neither has flesh, nor blood, nor bane;
And down in yon greenwood he walks his lane.

IN that green wene Kilmeny lay,
Her bosom happ'd wi' flowerets gay;
But the air was soft and the silence deep,
And bonny Kilmeny fell sound asleep.
She kenned nae mair, nor opened her e'e,
Till waked by the hymns of a far countrye.

She woke on a couch of the silk sae slim,
All striped wi' the bars of the rainbow's rim ;
And lovely beings round were rife,
Who erst had travelled mortal life ;
And aye they smiled and 'gan to speer,
" What spirit has brought this mortal here ? "

" Lang have I journeyed the world wide,"
A meek and reverend fere replied ;
" Baith night and day I have watched the fair
Eident a thousand years and mair.
Yes, I have watched o'er ilk degree
Wherever blooms femenitye ;
But sinless virgin, free of stain
In mind and body, fand I nane.
Never since the banquet of time
Found I a virgin in her prime
Till late this bonnie maiden I saw,
As spotless as the morning snaw :
Full twenty years she has lived as free
As the spirits that sojourn in this countrye :
I have brought her away frae the snares of men,
That sin or death she may never ken."

They clasped her waist and her hands sae fair,
They kissed her cheek and they kemed her hair ;
And round came many a blooming fere,
Saying : " Bonny Kilmeny, ye're welcome here !
Women are freed of the littand scorn :
O, blessed be the day Kilmeny was born !
Now shall the land of the spirits see,
Now shall it ken what a woman may be !
Many lang year in sorrow and pain,
Many lang year through the world we've gane,
Commissioned to watch fair womankind,
For it's they who nurse the immortal mind.
We have watched their steps as the dawning shone,
And deep in the greenwood walks alone ;
By lily bower and silken bed
The viewless tears have o'er them shed ;
Have soothed their ardent minds to sleep,
Or left the couch of love to weep.
We have seen ! we have seen ! but the time maun come,
And the angels will weep at the day of doom !

" O, would the fairest of mortal kind
Aye keep these holy truths in mind,
That kindred spirits their motions see,
Who watch their ways with anxious e'e,
And grieve for the guilt of humanitye.
O, sweet to heaven the maiden's prayer
And the sigh that heaves a bosom sae fair.
And dear to heaven the words of truth
And the praise of virtue frae beauty's mouth !
And dear to the viewless forms of air
The mind that kythes as the body fair.

" O bonny Kilmeny ! free frae stain,
If ever you seek the world again,
That world of sin, of sorrow, and fear,
O, tell of the joys that are waiting here ;
And tell of the signs you shall shortly see
Of the times that are now, and the times that shall be."

They lifted Kilmeny, they led her away,
And she walked in the light of a sunless day :
The sky was a dome of crystal bright,
The fountain of vision, and fountain of light :
The emerald fields were of dazzling glow,
And the flowers of everlasting blow.
Then deep in the stream her body they laid,
That her youth and beauty never might fade ;
And they smiled on heaven when they saw her lie
In the stream of life that wandered by.
And she heard a song, she heard it sung,
She ken'd not where ; but sae sweetly it rung
It fell on her ear like a dream of the morn :
" O, blest be the day Kilmeny was born !
Now shall the land of the spirits see,
Now shall it ken what a woman may be !
The sun that shines on the world sae bright,
A borrowed gleid frae the fountain of light,
And the moon that sleeks the sky sae dun,
Like a gouden bow, or a beamless sun,
Shall wear away and be seen nae mair,
And the angels shall miss them travelling the air.
But lang, lang after baith night and day,
When the sun and the world have fled away,
When the sinner has gane to his waesome doom,
Kilmeny shall smile in eternal bloom ! "

They bore her away, she wist not how,
For she felt not arm nor rest below ;
But so swift they wained her through the light
'Twas like the motion of sound or sight ;

They seemed to split the gales of air,
And yet nor gale nor breeze was there.
Unnumbered groves below them grew;
They came, they past, and backward flew,
Like floods of blossoms gliding on,
A moment seen, in a moment gone.
O, never vales to mortal view
Appeared like those o'er which they flew!
That land to human spirits given,
The lowermost vales of the storied heaven;
From thence they can view the world below,
And heaven's blue gates with sapphires glow,
More glory yet unmeet to know.

They bore her to a mountain green,
To see what mortal never had seen;
And they seated her high on a purple sward,
And bade her heed what she saw and heard;
And note the changes the spirits wrought,
For now she lived in the land of thought.
She looked, and she saw nor sun nor skies,
But a crystal dome of a thousand dyes;
She looked, and she saw nae land aright,
But an endless whirl of glory and light;
And radiant beings went and came
Far swifter than wind or the linkèd flame.
She hid her een frae the dazzling view;
She looked again, and the scene was new.

She saw a sun on a summer sky
And clouds of amber sailing by;
A lovely land beneath her lay,
And that land had lakes and mountains grey;
And that land had valleys and hoary piles,
And marlèd seas and a thousand isles.
Its fields were speckled, its forests green,
And its lakes were all of the dazzling sheen,
Like magic mirrors, where slumbering lay
The sun and the sky and the cloudlet grey,
Which heaved and trembled and gently swung;
On every shore they seemed to be hung:
For there they were seen on their downward plain
A thousand times, and a thousand again,
In winding lake and placid firth,
Like peaceful heavens in the bosom of earth.

Kilmeny sighed and seemed to grieve,
For she found her heart to that land did cleave;
She saw the corn wave on the vale,
She saw the deer run down the dale;
She saw the plaid and the broad claymore,
And the brows that the badge of freedom bore;
And she thought she had seen the land before.

She saw a lady sit on a throne,
The fairest that ever the sun shone on.
A lion licked her hand of milk,
And she held him in a leish of silk;
And a liefu' maiden stood at her knee
With a silver wand and melting e'e,
Her sovereign shield till love stole in,
And poisoned all the fount within.

Then a gruff untoward bedesman came,
And hundit the lion on his dame;
And the guardian maid wi' the dauntless e'e,
She dropped a tear and left her knee;
And she saw till the queen frae the lion fled,
Till the bonniest flower of the world lay dead;
A coffin was set on a distant plain,
And she saw the red blood fall like rain;
Then bonny Kilmeny's heart grew sair,
And she turned away and could look nae mair.

Then the gruff, grim carle girnèd amain,
And they trampled him down, but he rose again;
And he baited the lion to deeds of weir
Till he lapped the blood of the kingdom dear;
And, weening his head was danger-preef
When crowned with the rose and clover leaf,
He gowled at the carle, and chased him away
To feed wi' the deer on the mountain grey.
He gowled at the carle, and he gecked at heaven;
But his mark was set, and his arles given.
Kilmeny a while her een withdrew;
She looked again, and the scene was new.

She saw below her, fair unfurled,
One half of all the glowing world,
Where oceans rolled and rivers ran
To bound the aims of sinful man.
She saw a people, fierce and fell,
Burst frae their bounds like fiends of hell:
There lilies grew and the eagle flew,
And she herked on her ravening crew
Till the cities and towers were wrapped in a blaze
And the thunder it roared o'er the lands and the seas.

The widows they wailed, and the red blood ran,
And she threatened an end to the race of man :
She never lened, nor stood in awe,
Till caught by the lion's deadly paw.
Oh ! then the eagle swinked for life,
And brainzelled up a mortal strife ;
But flew she north, or flew she south,
She met wi' the gowl of the lion's mouth.

With a mooted wing and waefu' maen,
The eagle sought her eiry again ;
But lang may she cower in her bloody nest,
And lang, lang sleek her wounded breast,
Before she sey another flight
To play wi' the norland lion's might.

But to sing the sights Kilmeny saw,
So far surpassing Nature's law,
The singer's voice wad sink away
And the string of his harp wad cease to play.
But she saw till the sorrows of man were by,
And all was love and harmony ;
Till the stars of heaven fell calmly away,
Like the flakes of snaw on a winter's day.

Then Kilmeny begged again to see
The friends she had left in her own countrye,
To tell of the place where she had been
And the glories that lay in the land unseen ;
To warn the living maidens fair,
The loved of heaven, the spirits' care,
That all whose minds unmeled remain
Shall bloom in beauty when time is gane.

With distant music, soft and deep,
They lulled Kilmeny sound asleep ;
And when she awakened she lay her lane,
All happed with flowers in the greenwood wene.
When seven lang years had come and fled ;
When grief was calm and hope was dead ;
When scarce was remembered Kilmeny's name,
Late, late in a gloamin' Kilmeny came hame.
And O, her beauty was fair to see,
But still and steadfast was her e'e !
Such beauty bard may never declare,
For there was no pride nor passion there ;
And the soft desire of maidens' een
In that mild face could never be seen.
Her seymar was the lily flower,
And her cheek the moss-rose in the shower ;
And her voice like the distant melodye
That floats along the twilight sea.

But she loved to raike the lanely glen
And keep afar frae the haunts of men ;
Her holy hymns unheard to sing,
To suck the flowers and drink the spring.
But wherever her peaceful form appeared
The wild beasts of the hills were cheered ;
The wolf played blithely round the field,
The lordly bison lowed and kneeled ;
The dun deer wooed with manner bland,
And cowered aneath her lily hand.
And when at eve the woodlands rung,
When hymns of other worlds she sung
In ecstasy of sweet devotion,
O, then the glen was all in motion !
The wild beasts of the forest came,
Broke from their bughts and faulds the tame,
And goved around, charmed and amazed ;
Even the dull cattle crooned and gazed,
And murmured and looked with anxious pain
For something the mystery to explain.
The buzzard came with the throstle-cock ;
The corby left her houf in the rock ;
The blackbird alang wi' the eagle flew ;
The hind came tripping o'er the dew ;
The wolf and the kid their raike began,
And the tod and the lamb and the leveret ran ;
The hawk and the hern attour them hung,
And the merl and the mavis forhooyed their young ;
And all in a peaceful ring were hurled—
It was like an eve in a sinless world !

When a month and a day had come and gane
Kilmeny sought the greenwood wene ;
There laid her down on the leaves sae green ;
And Kilmeny on earth was never mair seen.
But O, the words that fell from her mouth
Were words of wonder and words of truth !
But all the land were in fear and dread,
For they kendna whether she was living or dead.
It wasna her hame, and she couldna remain ;
She left this world of sorrow and pain,
And returned to the land of thought again.

TO CARLO

Every man or woman or child who loves a dog will thank Sir Arthur Conan Doyle for the following lines

No truer, kinder soul
Was ever sped than thine.
You lived without a growl,
You died without a whine.

THE TRAVELLER'S RETURN

Robert Southey here describes without exaggeration the joy which comes when we return from a journey to the companionship of those we love beneath the roof of our home.

SWEET to the morning traveller
The song amid the sky,
Where, twinkling in the dewy light,
The skylark soars on high.

And cheering to the traveller
The gales that round him play,
When faint and heavily he drags
Along his noontide way.

And when beneath the unclouded sun
Full wearily toils he
The flowing water makes to him
A soothing melody.

And when the evening light decays,
And all is calm around,
There is sweet music to his ear
In the distant sheep-bell's sound.

But O! of all delightful sounds
Of evening or of morn,
The sweetest is the voice of love
That welcomes his return.

THREE YEARS SHE GREW

This exquisite poem, descriptive of a child who lived with Nature till she reflected its manifold beauty, refers apparently to a dream-child of Wordsworth's mind. Or there may have been a real child he had made his own by imagination and had lost, for in two other poems a Lucy is loved and dies. It was natural that Wordsworth, whose love of Nature was a passion, should picture a young life sunning itself in the pleasures that had been to him a perpetual joy.

THREE years she grew in sun and shower;
Then Nature said: "A lovelier flower
On earth was never sown.
This child I to myself will take;
She shall be mine, and I will make
A lady of my own.

"Myself will to my darling be
Both law and impulse, and with me
The girl, in rock and plain,
In earth and heaven, in glade and bower,
Shall feel an overseeing power
To kindle or restrain.

"She shall be sportive as the fawn
That, wild with glee, across the lawn
Or up the mountain springs;
And hers shall be the breathing balm,
And hers the silence and the calm
Of mute, insensate things.

"The floating clouds their state shall lend
To her; for her the willow bend;
Nor shall she fail to see
Even in the motions of the storm
Grace that shall mould the maiden's form
By silent sympathy.

"The stars of midnight shall be dear
To her; and she shall lean her ear
In many a secret place,
Where rivulets dance their wayward round,
And beauty born of murmuring sound
Shall pass into her face.

"And vital feelings of delight
Shall rear her form to stately height,
Her virgin bosom swell;
Such thoughts to Lucy I will give
While she and I together live
Here in this happy dell."

Thus Nature spake; the work was done—
How soon my Lucy's race was run!
She died, and left to me
This heath, this calm and quiet scene;
The memory of what has been,
And never more will be.

THE TORCH OF LIFE

The proper title of this stirring poem in praise of the manly game of cricket is Vitai Lampada, which means in English The Torch of Life. The idea of the poem is that if we keep shining in our life the spirit of honour we identify with "playing the game" we shall be making the best use of our powers. The poem is from the pen of Sir Henry Newbolt, by whose permission it is here reprinted.

THERE'S a breathless hush in the Close tonight—
Ten to make and the match to win—
A bumping pitch, and a blinding light,
An hour to play, and the last man in.
And it's not for the sake of a ribboned coat,
Or the selfish hope of a season's fame,
But his Captain's hand on his shoulder smote:
Play up! Play up! and play the game!

The sand of the desert is sodden red—
Red with the wreck of a square that broke—
The Gatling's jammed, and the Colonel dead,
And the regiment blind with dust and smoke.
The river of death has brimmed his banks,
And England's far, and honour a name,
But the voice of a schoolboy rallies the ranks:
Play up! Play up! and play the game!

This is the word that year by year,
While in her place the school is set,
Every one of her sons must hear,
And none that hears it dare forget.
This they all with a joyful mind
Bear through life like a torch of flame,
And, falling, fling to the host behind—
Play up! Play up! and play the game!

WE ARE THE DREAMERS OF DREAMS

In these stirring lines by Arthur O'Shaughnessy, a master of lyrical prose of the last generation, we feel the passionate love of the poet for his dreaming. There is the very life-breath of human progress here. Arthur O'Shaughnessy was born in 1844. He became an assistant, first in the library, and afterwards in the Natural History Department, of the British Museum, and died in 1881 at the early age of thirty-six. From this poem we may learn that he held the very highest opinion of the poet's mission and influence

WE are the music-makers,
And we are the dreamers of dreams,
Wandering by lone sea-breakers,
And sitting by desolate streams;
World-losers and world-forsakers,
On whom the pale moon gleams:
Yet we are the movers and shakers
Of the world for ever, it seems.

With wonderful deathless ditties
We build up the world's great cities,
And out of a fabulous story
We fashion an empire's glory:
One man with a dream at pleasure
Shall go forth and conquer a crown;
And three with a new song's measure
Can trample an empire down.

We, in the ages lying
In the buried past of the earth,
Built Nineveh with our sighing,
And Babel itself with our mirth;
And overthrew them with prophesying
To the old of the new world's worth:
For each age is a dream that is dying,
Or one that is coming to birth.

A breath of our inspiration
Is the life of each generation—
A wondrous thing of our dreaming,
Unearthly, impossible seeming.
The soldier, the king, and the peasant
Are working together in one,
Till our dreams shall become their present,
And their work in the world be done.

They had no vision amazing
Of the goodly house they are raising;
They had no divine foreshowing
Of the land to which they are going;
But on one man's soul it hath broken,
A light that doth not depart,
And his look, or a word he hath spoken,
Wrought flame in another man's heart.

And therefore today is thrilling
With a past day's late fulfilling,
And the multitudes are enlisted
In the faith that their fathers resisted;
And, scorning the dream of tomorrow,
Are bringing to pass, as they may,
In the world, for its joy or its sorrow,
The dream that was scorned yesterday.

But we, with our dreaming and singing,
Ceaseless and sorrowless we,
The glory about us clinging
Of the glorious futures we see,
Our souls with high music ringing:
O men! it must ever be
That we dwell, in our dreaming and singing,
A little apart from ye.

For we are afar with the dawning
And the suns that are not yet high,
And out of the infinite morning
Intrepid you hear us cry,
How, spite of your human scorning,
Once more God's future draws nigh,
And again goes forth the warning
That ye of the past must die.

"Great hail!" we cry to the comers
From the dazzling unknown shore;
"Bring us hither your sun and your summers,
And renew our world as of yore.
You shall teach us your song's new numbers,
And things that we dreamed not before;
Yea, in spite of a dreamer who slumbers,
And a singer who sings no more."

THE DAY THOU GAVEST

John Ellerton, the writer of this fine evening hymn, was a Church of England clergyman who died in 1893. The idea of praise and prayer arising unceasingly around the Earth, as it revolves into sunshine and shadow morning and evening, is here expressed with breadth and beauty.

THE day Thou gavest, Lord, is ended,
The darkness falls at Thy behest;
To Thee our morning hymns ascended,
Thy praise shall sanctify our rest.

We thank Thee that Thy Church unsleeping,
While earth rolls onward into light,
Through all the world her watch is keeping,
And rests not now by day or night.

As o'er each continent and island
The dawn leads on another day
The voice of prayer is never silent,
Nor dies the strain of praise away.

The sun that bids us rest is waking
Our brethren 'neath the western sky,
And hour by hour fresh lips are making
Thy wondrous doings heard on high.

So be it, Lord; Thy throne shall never,
Like earth's proud empires, pass away;
Thy kingdom stands, and grows for ever,
Till all Thy creatures own Thy sway.

THE BRIDGE

Longfellow sketched this picture of a bridge from his native town, Portland, in Maine. He had a great sorrow in early life—the death of his wife—and it tinged his mind with a sadness that can be traced here. But, as will be seen, he had begun to conquer his sorrow when he wrote these lines. Three verses are here omitted from the original version.

I STOOD on the bridge at midnight,
As the clocks were striking the hour,
And the moon rose o'er the city,
Behind the dark church-tower.

I saw her bright reflection
In the waters under me,
Like a golden goblet falling
And sinking into the sea.

And, like those waters rushing
Among the wooden piers,
A flood of thoughts came o'er me
That filled my eyes with tears.

How often, O, how often,
In the days that had gone by,
I had stood on that bridge at midnight
And gazed on that wave and sky!

How often, O, how often,
I had wished that the ebbing tide
Would bear me away on its bosom
O'er the ocean wild and wide!

For my heart was hot and restless,
And my life was full of care,
And the burden laid upon me
Seemed greater than I could bear.

But now it has fallen from me,
It is buried in the sea,
And only the sorrow of others
Throws its shadow over me.

Yet whenever I cross the river,
On its bridge with wooden piers,
Like the odour of brine from the ocean
Comes the thought of other years.

And I think how many thousands
Of care-encumbered men,
Each bearing his burden of sorrow,
Have crossed the bridge since then.

I see the long procession
Still passing to and fro,
The young heart hot and restless,
And the old subdued and slow.

And for ever and for ever,
As long as the river flows,
As long as the heart has passions,
As long as life has woes,

The moon and its broken reflection
And its shadows shall appear
As the symbol of love in heaven,
And its wavering image here.

HOLYROOD

In this imaginative little poem by Will H. Ogilvie, a popular writer of songs in our own day, we have a very good test of our knowledge of Scottish history. Holyrood is perhaps the most historic building in the northern kingdom; it is full of memories of the kings and queens who reigned at Edinburgh, and the poet supposes the ghosts of all these vanished figures to be thronging the ancient halls, with no one there to witness them but the pale moon.

THE moon held court in Holyrood last night—ten thousand stars
By ancient tower and archway climbed and kissed the window-bars.
The night wind knelt upon the hill, the crouching lion lay
With shoulder to the capital and blind eyes to the bay.

The moon held court in Holyrood, and as she entered in
On damask fringe and tapestry the spider ceased to spin.
The slow moon slipped across the floor and bowed a queenly head
To greet the train that passed her by—a thousand sleepless dead.

She drifted down the storied hall and touched with spread white wings
The gallery of a hundred dead, the corridor of kings.
She smiled upon a rebel prince, and stretched white hands to shrive
The gallant men, the peerless maids, that danced in "Forty-five."

She crossed a sleeping-chamber, hung with trappings rich and rare,
And kissed them softly one by one; it was a queen lay there.
She heard the lute notes rise and fall, she watched the dagger sped,
While underneath her trembling wings the brown stain turned to red.

The moon held court in Holyrood, and from the northern tower
She looked along the High Street, sad at heart for Scotland's flower,
And, looking, saw a rider pass, pale-faced and battle-worn,
Beneath the drooping Flodden flag, all red and slashed and torn!

The moon passed out of Holyrood, white lipped to open sky;
The night wind whimpered on the crags to see the ghosts go by,
And stately, silent, sorrowful, the lonely lion lay,
Gaunt shoulder to the capital and blind eyes to the bay

ROBIN GOODFELLOW

Robin Goodfellow is one of the many names for a mischievous fairy, such as Puck. He is really the spirit of impish mischief, and his character was never better described than in this delightful poem, whose author is unknown. It may have been written by Ben Jonson to be sung in one of the masques, or costume plays, in which the great ladies and gentlemen of his day delighted to perform. The word welkin in the second verse means the sky.

FROM Oberon, in fairyland,
The king of ghosts and shadows there,
Mad Robin I, at his command,
Am sent to view the night sports here.
What revel rout
Is kept about,
In every corner where I go,
I will o'ersee,
And merry be,
And make good sport, with ho, ho, ho!

More swift than lightning can I fly
About this airy welkin soon,
And, in a minute's space, descry
Each thing that's done below the moon.
There's not a hag
Or ghost shall wag,
Or cry 'Ware goblins! where I go;
But Robin, I,
Their feasts will spy,
And send them home, with ho, ho, ho!

Whene'er such wanderers I meet,
As from their night sports they trudge home,
With counterfeiting voice I greet,
And call them on with me to roam;
Through woods, through lakes,
Through bogs, through brakes,
Or else, unseen, with them I go,
All in the nick
To play some trick,
And frolic it, with ho, ho, ho!

Sometimes I meet them like a man,
Sometimes an ox, sometimes a hound
And to a horse I turn me can,
To trip and trot about them round.
But if to ride
My back they stride
More swift than wind away I go;
O'er hedge and lands,
Through pools and ponds,
I hurry, laughing, ho, ho, ho!

By wells and rills, in meadows green,
We nightly dance our heyday guise;
And to our fairy king and queen
We chant our moonlight minstrelsies.
When larks 'gin sing
Away we fling,
And babes new born steal as we go;
And elf in bed
We leave instead,
And wend us laughing, ho, ho, ho!

From hag-bred Merlin's time have I
Thus nightly revelled to and fro;
And for my pranks men call me by
The name of Robin Goodfellow.
Fiends, ghosts, and sprites,
Who haunt the nights,
The hags and goblins do me know;
And beldames old
My feats have told,
So *vale, vale!* ho, ho, ho!

THE UNSEEN PLAYMATE

Robert Louis Stevenson in this poem (reprinted from A Child's Garden of Verses by permission of Messrs. Longmans) has written a beautiful piece of fancy. He almost makes us see this unseen playmate. He means of course, the gentle spirit of happiness and of true childhood joy, which makes each little boy or girl never feel lonely.

WHEN children are playing alone on the green
In comes the playmate that never was seen.
When children are happy and lonely and good
The Friend of the Children comes out of the wood.

Nobody heard him and nobody saw,
His is a picture you never could draw;
But he's sure to be present, abroad or at home,
When children are happy and playing alone.

He lies in the laurels, he runs on the grass,
He sings when you tinkle the musical glass;
Whene'er you are happy and cannot tell why
The Friend of the Children is sure to be by!

He loves to be little, he hates to be big,
'Tis he that inhabits the caves that you dig;
'Tis he, when you play with your soldiers of tin,
That sides with the Frenchmen and never can win.

'Tis he, when at night you go off to your bed,
Bids you go to your sleep and not trouble your head;
For wherever they're lying, in cupboard or shelf,
'Tis he will take care of your playthings himself!

PAULINUS AND EDWIN

The conversion here recorded by Francis Turner Palgrave is said to have taken place at Doncaster when Edwin the Northumbrian king met Paulinus, a monk sent by Pope Gregory, with Augustine, to convert the English. The warrior who advised Edwin to accept the new religion, which told men whence they were come and whither they were going, is usually referred to as a priest named Coifi.

THE black-haired, gaunt Paulinus
By ruddy Edwin stood:
"Bow down, O King of Deira,
Before the holy rood!
Cast forth thy demon idols,
And worship Christ our Lord!"
But Edwin looked and pondered,
And answered not a word.

Again the gaunt Paulinus
To ruddy Edwin spake:
"God offers life immortal
For His dear Son's own sake.
Wilt thou not hear His message,
Who bears the keys and sword?"
But Edwin looked and pondered,
And answered not a word.

Rose then a sage old warrior,
Was five score winters old,
Whose beard from chin to girdle
Like one long snow-wreath rolled;
"At Yuletide in our chamber
We sit in warmth and light,
While cavern-black around us
Lies the grim mouth of Night.

"Athwart the room a sparrow
Darts from the open door;
Within the happy hearth-light
One red flash, and no more!
We see it born from darkness
And into darkness go—
So is our life, King Edwin!
Ah, that it should be so!

"But if this pale Paulinus
Have somewhat more to tell,
Some news of whence and whither,
And where the soul may dwell;
If on that outer darkness
The sun of Hope may shine,
He makes life worth the living,
I take his God for mine."

So spake the wise old warrior,
And all about him cried:
"Paulinus, God hath conquered,
And He shall be our Guide;
For He makes life worth living
Who brings this message plain:
When our brief days are over
That we shall live again."

WITH A COPY OF HERRICK

Edmund Gosse, the most universally honoured of living English critics at the time this book is printed, has the high qualification of being himself a true poet, though his ambitious flights have not been many. In these verses on Robert Herrick he makes poetry of criticism. Could Herrick's love of flowers, and his dainty touch when writing of them, be more poetically suggested?

FRESH with all airs of woodland brooks
And scents of showers,
Take to your haunt of holy books
This saint of flowers.

When meadows burn with budding May,
And heaven is blue,
Before his shrine our prayers we say,
Saint Robin true.

Love crowned with thorns is on his staff,
Thorns of sweet-briar;
His benediction is a laugh,
Birds are his choir.

His sacred robe of white and red
Unction distils;
He hath a nimbus round his head
Of daffodils.

THE FIELD PATH

The love of a place for the memories it recalls has never been more tenderly expressed than in these quaintly lovely lines from the pen of William Barnes, the Dorset poet.

HERE sounded words of dear old folk
Of this dear ground.
Where ivy wound
About this ribbed oak,
And still their words, their words now gone,
Are dear to me that linger on.

And here, as comely forms would pass,
Their shades would slide
Below their side,
Along the flow'ry grass.
And now their shades, their shades now gone,
Still hallow ground they fell upon.

But could they come where then they strolled,
However young
Might sound their tongue,
Their shades would show them old.
So sweet are shades, the shades now shown,
The shades of trees they all have known.

These ashen poles that shine so tall
Are still too young
To have upsprung
In days when I was small;
But you, stout oak, you, oak so stout,
Were here when my first moon ran out.

SEVEN YEARS

These tender verses by the first Marquess of Crewe doubtless express his feelings as he looks back on his life with the wife he lost. His father, who was first Sir Richard Monckton Milnes and then Lord Houghton, was also a poet.

To join the ages they have gone,
Those seven years,
Receding as the months roll on;
Yet very oft my fancy hears
Your voice—'twas music to my ears
Those seven years.

Scant the shadow and high the sun
Those seven years;
Can hearts be one, then ours were one,
One for laughter and one for tears,
Knit together in hopes and fears,
Those seven years.

How, perchance, do they seem to you,
Those seven years,
Spirit-free in the wider blue?
When time in Eternity disappears,
What if all you have learned but the more endears
Those seven years?

THE CALL OF THE VELD

Every country calls aloud to the people who were born in it to return to it as their natural home. In these verses Mary Byron interprets for us the appeal of the South African upland to its wandering children. The word veld is the same as our word field, and the v is pronounced like f. It means the open country, and in South Africa is mostly grazing ground, such as in America is called prairie.

What siren has taught you to call us
Where wind-swept lands sigh for the rain?
Who gave you the lures to enthral us,
O drought-stricken plain?
Ah, but the clear light of dawning!
Ah, but the freedom it spelt!
The limitless width of life's morning,
The call of the Veld!

No land of your sons has bereft you,
No magic can make them forget,
For those who have loved you and left you
They dream of you yet.
They dream of the brown and red grasses,
The homestead where once they have dwelt;
They hear on the wind as it passes
The call of the Veld.

And we who have seen of life's treasure,
And hunger of travel have known,
Have drunken our fill of its pleasure
Till weary we've grown;
And then with the sob that comes after
The mirth, as our throbbing hearts melt,
We hear, above sound of our laughter,
The call of the Veld.

We yearn for the home when we're tired,
Horizons where veld and sky meet,
To shake off the dust that has mired
Our wandering feet.
All wonder of love in new semblance,
Strange gods at whose altars we knelt,
Are naught when we call to remembrance
The god of the Veld;

Whose pathway is o'er the blue mountains,
Whose breath is the keen-scented air,
Whose storm-clouds have hollowed the fountains
And made the Veld fair;
To haunt us in joy or in weeping,
Whichever our fate may have dealt,
To give us at last a long sleeping
Safe under the Veld!

THE LORD IS MY SHEPHERD

The twenty-third Psalm has often been paraphrased into English verse, notably in Addison's "The Lord my pasture shall prepare," but surely this is the most tender and touching of all versions of that lovely hymn of faith. When Stopford Brooke, one of the most beloved of literary critics, reached his eightieth birthday a large number of his fellow-writers sent him a message of affectionate greeting, and in reply he sent to them this exquisite poem, beautiful as the Psalm which inspired it. Hard, indeed, must be the heart that can follow its strains untouched.

Beside still waters, where the grass
Is sweet and soft, by shadowy trees,
My Shepherd leads my weary feet
To give me ease.

This Shepherd is my Lord, my Love;
I shall not want; and when my soul
Is sick and heavy laden He
Restores it whole.

In paths of righteousness He guides
My erring steps, and if I go
Through the dark, shadowed vale of death
I find no foe.

For He is with me, and His staff
Guides me with love, and bids me take
Comfort and joy; and this He does
For His Name's sake.

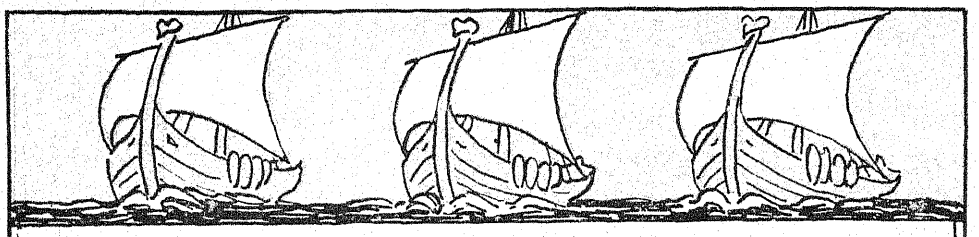
When, in the hungry waste of life,
My heart is starved, He doth prepare
His wine and oil for my poor sprite,
And plenteous fare.

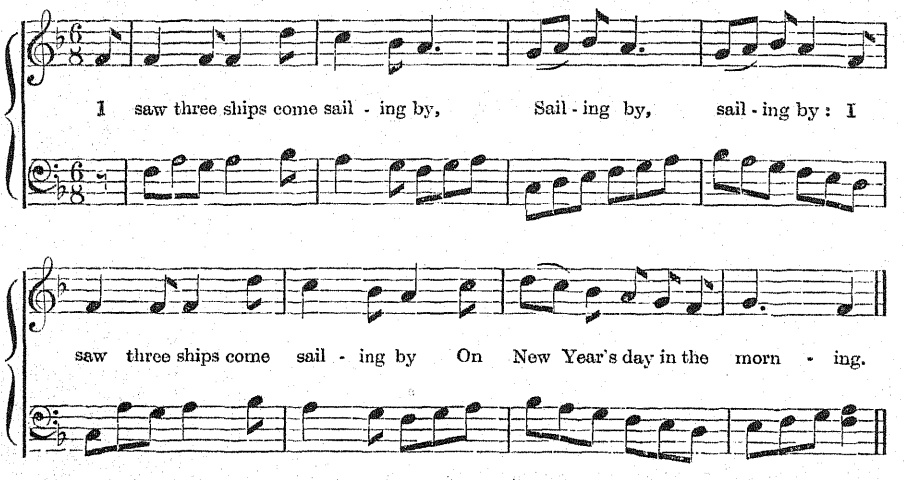
So, like a stream that sweetly runs
Beside my path, from lea to lea,
My Shepherd's goodness, year by year,
Has followed me.

And I shall dwell, when death shall bring
Me, wearied, to the eternal shore,
In His enclosèd fold of peace
For evermore.

THREE WISE MEN OF GOTHAM

I SAW THREE SHIPS COME SAILING BY



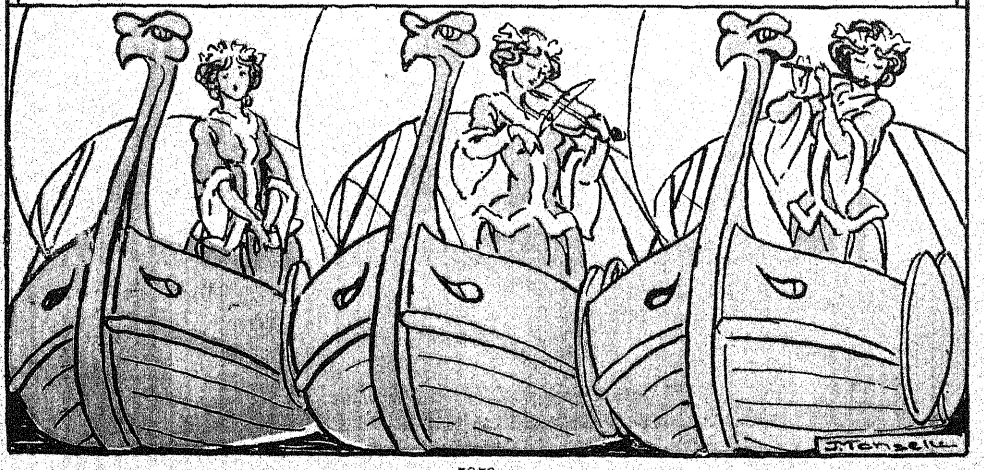


I saw three ships come sailing by,
Sailing by, sailing by:
I saw three ships come sailing by
On New Year's day in the morning.

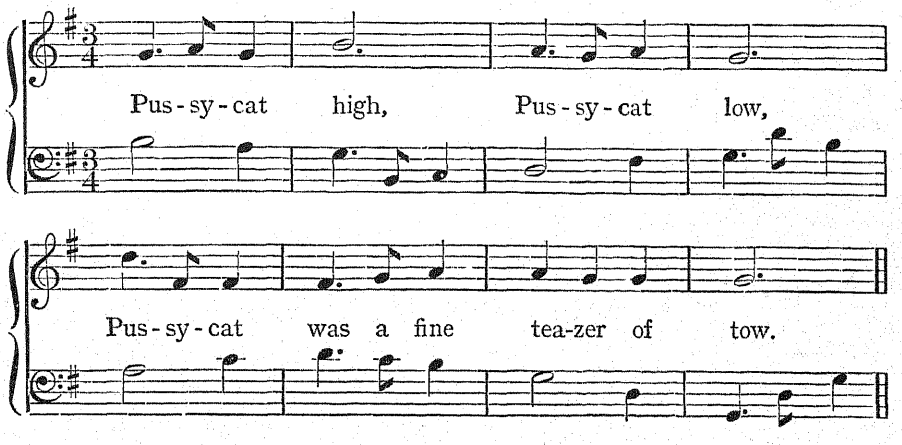
What do you think was in them then,
In them then, in them then:
What do you think was in them then
On New Year's day in the morning?

Three pretty girls were in them then,
In them then, in them then:
Three pretty girls were in them then,
On New Year's day in the morning.

One could whistle, and one could sing,
And one could play the violin,
Such joy was there at my wedding
On New Year's day in the morning.



PUSSY-CAT HIGH, PUSSY-CAT LOW



Pussy-cat high, pussy-cat low,
Pussy-cat was a fine teazer of tow.

Pussy-cat she came into the barn,
With her bagpipes under her arm.

Then she told a tale to me,
How Mousey had married a Humble Bee.

Then was I ever so glad
That Mousey had married so clever a lad.

LITTLE VERSES FOR VERY LITTLE PEOPLE

JACK SPRAT COULD EAT NO FAT

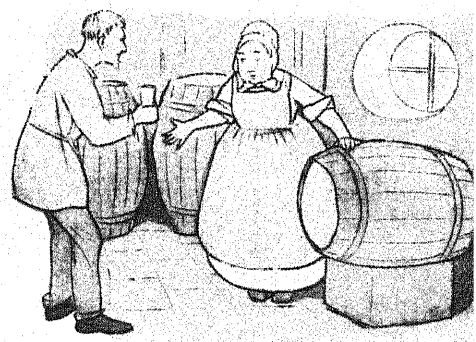
JACK SPRAT could eat no fat,
His wife could eat no lean;
So it came to pass, between them both,
They licked the platter clean.
Jack ate all the lean,
Joan ate all the fat;
The bone they picked it clean,
Then gave it to the cat.

Joan Sprat went to brewing
A barrel of ale;
She put in some hops
That it might not turn stale.

But as for the malt,
She forgot to put that;
This is brave, sober liquor,
Said little Jack Sprat.

Jack Sprat was wheeling
His wife by the ditch;
The barrow turned over,
And in she did pitch.

Says Jack, She'll be drowned,
But Joan did reply:
I don't think I shall,
For the ditch is quite dry.



JOHNNY SHALL GO TO THE FAIR

JOHNNY shall have a new bonnet,
And Johnny shall go to the fair,
And Johnny shall have a blue ribbon
To tie up his bonnie brown hair.
And why may I not love Johnny?
And why may not Johnny love me?
And why may I not love Johnny
As well as another body?

And here's a leg for a stocking,
And here's a foot for a shoe,
And he has a kiss for his daddy,
And two for his mammy, I trow.
And why may I not love Johnny?
And why may not Johnny love me?
And why may I not love Johnny
As well as another body?

LUCY GRAY

In this well-known ballad by William Wordsworth the awful sense of solitude and the terror of the dark days of winter on the lonely moors are suggested with the most dramatic effect, and yet in a way that is simple and direct.

OFT I had heard of Lucy Gray :
  And, when I crossed the wild,
I chanced to see at break of day
  The solitary child.

No mate, no comrade Lucy knew ;
  She dwelt on a wide moor,
The sweetest thing that ever grew
  Beside a human door !

You yet may spy the fawn at play,
  The hare upon the green ;
But the sweet face of Lucy Gray
  Will never more be seen.

" Tonight will be a stormy night,
  You to the town must go ;
And take a lantern, child, to light
  Your mother through the snow."

" That, Father, will I gladly do :
  'Tis scarcely afternoon,
The minster-clock has just struck two,
  And yonder is the moon ! "

At this the father raised his hook,
  And snapped a faggot-band ;
He plied his work ; and Lucy took
  The lantern in her hand.

Not blither is the mountain roe ;
  With many a wanton stroke
Her feet disperse the powdery snow,
  That rises up like smoke.

The storm came on before its time :
  She wandered up and down ;
And many a hill did Lucy climb :
  But never reached the town.

The wretched parents all that night
  Went shouting far and wide ;
But there was neither sound nor sight
  To serve them for a guide.

At daybreak on a hill they stood
  That overlooked the moor ;
And thence they saw the bridge of wood,
  A furlong from their door.

They wept—and, turning homeward, cried :
  " In heaven we all shall meet ! "
When in the snow the mother spied
  The print of Lucy's feet.

Then downwards from the steep hill's edge
  They tracked the footmarks small ;
And through the broken hawthorn hedge,
  And by the long stone wall ;

And then an open field they crossed :
  The marks were still the same ;
They tracked them on, nor ever lost ;
  And to the bridge they came.

They followed from the snowy bank
  Those footmarks, one by one,
Into the middle of the plank ;
  And further there were none !

Yet some maintain that to this day
  She is a living child ;
That you may see sweet Lucy Gray
  Upon the lonesome wild.

O'er rough and smooth she trips along,
  And never looks behind ;
And sings a solitary song
  That whistles in the wind.

A SONG IN WINTER

In this song of spring revival Mr. A. St. John Adcock recognises how the old world goes onward with a blithe bravery. It is the poet's answer to a robin's winter song.

A ROBIN sings on a leafless spray,
  Hey-ho, winter shall go !
Sunlight shines on the desolate way,
  And under my feet
  I feel the beat
Of the world's heart that never is still,
  Never is still,
Whatever may stay.

Life out of death, as day out of night,
  Hey-ho, winter will go !
In the dark hedge shall glimmer a light,
  A tremulous sheen
  Of budding green,
Then, silent, the dawn of summer breaks,
  As morning breaks,
On valley and height.

The tide ebbs out, and the tide flows back,
  Hey-ho, winter shall go !
Though heaven be screened by a cloudy rack,
  It rains, and the blue
  Comes laughing through ;
And, cloud-like, winter goes from the earth,
  Goes from the earth,
That flowers in its track.

Sing, robin, sing on your leafless spray,
  Hey-ho, winter will go !
Sunlight and song shall shorten the way,
  And under my feet
  I feel the beat
Of the world's heart that never is still,
  Never is still,
Whatever may stay.

THE REAPER

This is one of the most beautiful of the many poems by Wordsworth. It shows how the imagination of the poet may be strangely stirred by so simple an incident as a woman reaping in the field and singing while she works.

BEHOLD her, single in the field,
Yon solitary Highland lass!
Reaping and singing by herself;
Stop here, or gently pass!
Alone she cuts and binds the grain,
And sings a melancholy strain;
Oh, listen! for the vale profound
Is overflowing with the sound.

No nightingale did ever chaunt
More welcome notes to weary bands
Of travellers in some shady haunt
Among Arabian sands:
A voice so thrilling ne'er was heard
In spring-time from the cuckoo-bird,
Breaking the silence of the seas
Among the farthest Hebrides.

Will no one tell me what she sings?
Perhaps the plaintive numbers flow
For old, unhappy, far-off things
And battles long ago;
Or is it some more humble lay,
Familiar matters of today?
Some natural sorrow, loss, or pain,
That has been, and may be again?

Whate'er the theme, the maiden sang
As if her song would have no ending;
I saw her singing at her work
And o'er the sickle bending.
I listened, motionless and still;
And as I mounted up the hill
The music in my heart I bore
Long after it was heard no more.

THE KINGDOM OF GOD

Dr. R. C. Trench, formerly Archbishop of Dublin, wrote many wise works for scholars and also many fine poems. The lesson these verses of his teach is that God is Love, and that to do what is pleasing in the sight of God, to follow our daily path with Him as our guide, is the only sure and certain way to find real and lasting happiness.

I SAY to thee, do thou repeat
To the first man thou mayest meet
In lane, highway, or open street

That he and we and all men move
Under a canopy of love,
As broad as the blue sky above;

That doubt and trouble, fear and pain
And anguish, all are shadows vain;
That death itself shall not remain;

That weary deserts we may tread,
A dreary labyrinth may thread,
Through dark ways underground be led;
Yet, if we will one Guide obey,
The dreariest path, the darkest way,
Shall issue out in heavenly day;

And we, on divers shores now cast,
Shall meet, our perilous voyage past,
All in our Father's house at last.

And ere thou leave him say thou this,
Yet one word more—they only miss
The winning of that final bliss

Who will not count it true that love,
Blessing, not cursing, rules above,
And that in it we live and move.

And one thing further make him know:
That to believe these things are so,
This firm faith never to forgo,

Despite of all which seems at strife
With blessing, and with curses rife,
That this *is* blessing, this *is* life.

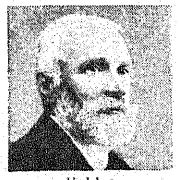
THE RIVER

Poets have ever loved to write of flowing streams, for there is nothing in Nature so charged with poetry and the mystery of life as the river on its way to the sea. It is the commonest illustration of this moving, changeful life of ours, and has been used in many different ways, as suits the poet's mood. Kingsley, Tennyson, Southey, and other poets have dealt with the poetry of rushing water with wonderful effect, but this is just a pretty song by Mr. Frederic E. Weatherly, who turns the river and its music into a melody of gentle life.

WHERE do you come from, river sweet?
Whence do your wavelets roam?
Is it a lake or a mountain brake,
Where fairies make their home?
Is it a land where children play
Or old folks dream at close of day?
"Nay," said the river, whispering low,
"It is from Babyland I flow!"

Why do you hurry, O river fleet?
Can you not stay your stream,
And waft me tenderly, soft and sweet,
Back to that land of dream?
Can we not turn and play once more
In Babyland, as we played of yore?
"Nay," said the river, "that may not be;
There's no returning for you or me!"

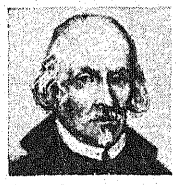
Whither away, I cried again,
Whither away, O stream?
Do you rest at last when your journey's past
In some beautiful land of dream?
Is it a land that we may know,
And find the peace of the long ago?
"Yes," said the river, "a land that's blest;
'Tis the land of love and eternal rest!"

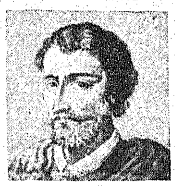

Valdes

Lope de Vega

Camoens

Blasco Ibanez


Calderon


Hurtado de Mendoza

THE LITERATURE OF SPAIN & PORTUGAL

It might be supposed that the two countries of Spain and Portugal, once leaders in the world's colonisation, would be distinguished as centres of literature, but they do not fulfil such an expectation. Both countries have been prolific in books for a thousand years, except in periods of depression, yet only two individual writers stand out as great in a survey of the whole world's literature. On that scale Cervantes stands for Spain and Camoens for Portugal. The lives of these two master writers were in a high degree romantic.

From Spain, however, come two interesting collections of poetical and prose records of medieval romance, The Cid and Amadis of Gaul, which have a place in world literature. Later, in the days of her greatness, Spain produced two dramatists and poets, one of whom, Calderon, has been accepted as of deservedly European fame, and the other, Lope de Vega, is regarded by Spaniards as their greatest man of letters. Outside of The Cid, Amadis, Cervantes, Calderon, Vega, and Camoens, both Spain and Portugal have only a literary story of an ordinary kind.

If we inquire into the reason why Spain has not a fuller literature with a wider influence, we find part of the answer in three facts. The country has always had serious divisions in territory and dialects, which have prevented complete concentration on the classical Castilian tongue, and long kept Latin alive as the language for serious writing. The first serious Spanish History, by Juan Mariana, finished in the early seventeenth century, was written in Latin, and only translated into Spanish. Again, Spain has always been a country where freedom of thought, with its frank expression in literature, was restricted—a state of things unfavourable to great literature. And, lastly, the Spanish language, by reason of its abounding rhymes, makes versifying extremely easy. The form of poetry, therefore, can be so readily assumed that there is a temptation to be satisfied without the choiceness in thought and expression that are essential for true distinction.

As a part of the Roman Empire, Spain had great importance. Famous Roman rulers and writers were born there. Latin became so completely the language of the peninsula that, in all the centuries that followed, no invaders except the Moors ever introduced their language.

But when Imperial Rome lost her hold the country was divided by its sundering mountains into a number of kingdoms,

each of which developed its own language from the Latin. Thus, by the time the Middle Ages were reached and romance was blossoming into literature, as in the legends of Arthur and Charlemagne farther north, Spain had formed at least three provincial languages from the old Latin foundation.

They were Galician, allied to Portuguese, in the north-west; Catalan, allied to the French dialect of Provence, in the north and east, and Castilian in the centre. In the south Arabic held such sway that there came a time, in the ninth century, when it seemed possible that it might eventually become the language of Spain. Averrhoes, the most famous of the Arabian philosophers, was born in Spain in 1126, when the Moors vied in civilisation with the most advanced nations of Europe. It was not till the Moors had been thrust back farther south, and the Castilian tongue had gained a wider currency through the spread of the Poem of The Cid, the writing of national Chronicles under the supervision of Alphonso the Tenth (1252–1284), and his publication of a national Code of Laws, that Spain approached towards unity of language.

THE MYSTERY WHICH SURROUNDS THE ORIGIN OF AMADIS

The Poem of The Cid, the Chronicles, and the Laws were the nucleus round which Spain gradually formed itself as a proud nation. Later, the predominance of the Castilian tongue was strengthened by the fact that the most popular of all medieval romances in Spain, Amadis de Gaula, first gained wide currency in the Spanish of Castile.

When and where this famous romance of Amadis originated is an unsolved problem of literary history. It is firmly claimed by Portugal and by the allied dialect of Galician Spanish. It is clearly derived in subject from France. But, in its first traceable published form, it is written in Castilian Spanish. For centuries it was freely added to by unknown writers, who made up marvellous knightly adventures for the fabulous Amadis. The Spaniards were deeply in love with these unreal stories of chivalrous doings long after they had ceased to stir the northern races, and and it was Cervantes who laughed them out of the fashion in his Don Quixote. But Amadis, in its twelve books, contained some fine passages, and is the first substantial Spanish book.

As much could scarcely be said of the earlier poems and romances of The Cid, with the extensive collection of ballads that surrounded his largely legendary history. The Cid is the national hero of Spain, pictured by the imagination of later generations as the possessor of all knightly virtues. The earlier of these literary tributes to a fearless man have a fine, rough, poetic strength.

THE ROMANTIC KNIGHT WHOSE STORY IS TOLD IN TWO HUNDRED BALLADS

As a matter of fact The Cid, whose name was Rodrigo Diaz de Bivar, a knight of the eleventh century, was a soldier of fortune who fought both against and for the Moslem Moors, according to his opinion of the treatment he received from the other side. He appeared with his band of free lances on many battlefields. Before he died, in 1099, he had ruled four years as a king in Valencia. His name The Cid (pronounced Theed in Spanish) is derived from the Arabic El Seid, meaning the Lord, and he is often called El Campeador, or the Champion, because he overthrew in single combat the champion of the enemy. In Spanish poetry he is Cid Meo, "My Lord," or Cid Campeador. Two hundred ballads tell his virtues, and to this day the Spanish people are roused to national fervour by his memory, as it is preserved in legend and song rather than in history.

The early literature of romance, prevalent in Spain in the fifteenth and sixteenth centuries, was accompanied by miracle plays, early forms of novel writing, and lyrical verse, mostly imitations from the Italian.

The first writer of regular drama, Lope de Rueda, was an actor; the first notable poets were Garcilaso de la Vega, Fernando de Herrera, and Luis Ponce de Leon, the great religious poet. The first historians were Juan de Mariana, a Jesuit priest; and Diego Hurtado de Mendoza, a statesman of the sixteenth century. The two last-named placed Spanish prose on a firm foundation.

THE POPULAR FICTION WHICH MADE A HERO OF A ROGUE

To Mendoza was attributed the novel Lazarillo de Tormes, which began the distinctive Spanish style of fiction known as picaresque; but later opinion denies him its credit or discredit. The picaresque novel is one which has a rogue for its hero. It was sedulously practised in Spain, and attained its highest point of skill in France, in Le Sage's Gil Blas. There are English

specimens in Defoe's Colonel Jack, and Fielding's Jonathan Wild. It is not a form of fiction of which Spain may be proud.

Late in the sixteenth century and the earlier part of the seventeenth, Spanish literature reached its culminating height in the works of Miguel de Cervantes and Lope de Vega.

THE FAMOUS SPANIARD WHO DIED ON THE DAY WHEN SHAKESPEARE DIED

Cervantes was born of an old Spanish family, seventeen years before Shakespeare, and he died on the day Shakespeare died. He lived an active, adventurous life for a man who will always be known through his writings. At 21 his first poems were published, on the death of the Spanish queen. When he was 24 he was a soldier fighting in the great battle of Lepanto against the Turks, and was severely wounded. Later he served in Tunis and Italy. On his return he was captured off Marseilles by a squadron of Barbary pirates and taken as a prisoner and slave to Algiers. The pirates knew he was a man of importance, and, though he repeatedly attempted to escape, his life was preserved, for his presence in Algiers was believed by the corsairs to prevent the town from being bombarded by the Spanish fleet. Finally, after five years detention, he was ransomed for 500 gold ducats, and returned home to Spain.

Then he wrote a number of plays, but only two of them have been preserved. At this time he was writing for a living in imitation of Italian models, and not in the style natural to him. As writing did not afford him a living, he found employment in helping to provision the Invincible Armada which was about to sail for the conquest of England. After the defeat of the Armada he sought in vain for service that would preserve him from a life of poverty, but apparently he was more than once imprisoned for debt or other money difficulties. During this period he was occasionally writing poems, for which he was ill qualified. But when Don Quixote appeared in 1605, he then being nearly 60 years old, it was instantly successful, and was widely pirated by booksellers.

THE BOOK WHICH MADE CERVANTES IMMORTAL BUT LEFT HIM POOR

Notwithstanding the popularity of his book, Cervantes remained poor, and apparently lived partly through the patronage of richer friends. He continued writing poems and plays with indifferent success, but his Exemplary Novels were, and are, notable books. He had promised to write a sequel to Don Quixote, but refrained until a sequel was published by an anonymous abusive writer who reviled the author of the immortal first part. Thus insulted, Cervantes concluded the book with a second part, even finer in its humour and humanity than the first part. In six months he was dead, and the place where his body rests remains unknown.

No book except the Bible has been more frequently translated into other languages, or has more completely sustained its reputation. Beyond any comparison it is the masterpiece of Spanish literature, yet Spain neglected its author almost as ungratefully as she neglected Columbus, who found a continent for her.

Don Quixote was written to make fun of the sham ideas of chivalry that had become a thoroughly insincere fashion in Spain. As he went on with his work it grew into a survey of the people who made up the Spanish nation, as they appeared to a man of humour and broad sympathy, seeing life from many points of view, with a mixture of sadness and amusement. There is no other book like it in the whole range of literature.

THE FAMOUS MAN WHO WROTE NEARLY TWO THOUSAND PLAYS

Lope de Vega, who lived from 1562 to 1635, was the successful contemporary of Cervantes; sometimes his enemy and sometimes his friend. He was the most prolific writer of plays who has ever lived in any country. Long and short, he certainly wrote nearly 2000, and more than 400 are still in existence.

Vega understood what the Spanish public needed in a play; they judged it by its power of producing continuous excitement.

He was a born master of plot-making, and so he was popular. He was fêted, rich, and had the world at his feet throughout a life that was far from admirable. He and Cervantes make one of the most glaring contrasts in all literature, as judged by their contemporaries and their countrymen, and as they are judged by posterity and the world at large.

Lope de Vega not only wrote plays, often at the rate of an act a day, but he wrote everything that other men had written or were writing with public appreciation. He hastened to challenge comparison with the Exemplary Novels of

Cervantes by stories of his own, and, as an epic poet, he boldly entered the lists against Tasso. But his fame is that of a clever craftsman of plays to suit the Spanish temperament, setting a new standard of stagecraft in his country, and an example of unrivalled industry in writing.

Vega fought in the Spanish Armada as a young man. In his old age he tried to redeem a dissolute life by becoming a priest, and an officer of the Inquisition, and by giving his wealth to the Church and his body to self-torture. But, for all his poverty, the kindlier natured Cervantes was the happier man of the two.

CERVANTES IN HIS DYING HOURS WRITES THE DEDICATION OF HIS LAST BOOK

Pedro Calderon de la Barca, the greatest Spanish dramatist and poet, belonged to the generation after Cervantes and Lope de Vega. He was 16 when Cervantes died at 68, and 35 when Vega died at 73.

Calderon's life was, except in morals, much the same as that of Vega. He served in youth as a soldier for ten years, according to his biographer, but this is doubtful. He had begun to write plays when he was a boy, and by the time his soldiering was ended he had gained such applause as a dramatist that when Lope de Vega died the king summoned the soldier to Madrid to be Court master of amusements. Here he lived in high honour until he was 51, when he entered the priesthood. But later he was recalled to the Court as the king's chaplain, and he continued his writing of plays, chiefly religious. When he died, at 81, he had a notable funeral, and his body now lies in the Spanish pantheon.

Though Calderon was a Spaniard through and through, imbued with the national ideas and writing to suit the national temperament, which loves an eloquence that is above all things showy, his writing has appealed more strongly to European taste than any other Spanish writer except Cervantes. He is recognised as an impressive poet as well as a skilful playwright. A considerable number of the 118 Calderon plays that are preserved have been reproduced in other countries in the form of adaptations, and except Cervantes, no other Spanish writer has been so widely translated. Among his English translators have been Shelley, Archbishop Trench, and Edward Fitz-Gerald, who sought to reproduce Calderon's

effects in a free translation, true in spirit rather than in verbal exactness. A fine example of Calderon's form in tragedy is translated by FitzGerald as The Mayor of Zalamea. The play was based on a sketch by Lope de Vega.

Other dramatists of note of the period was Gabriel Tellez and Agustin Moreto.

After this time Spanish literature faded away into comparative insignificance, and it has only revived into a state worthy of notice in the modern fiction of Pereda, Valera, Galdos, Valdes, and Vicente Blasco Ibanez. Ibanez, who was born in 1866, has secured frequent English translation for his powerful stories.

The Catalan dialect has a considerable literature which, however, does not reach the level of a continental reputation. Its most striking poet in the distant past was a Valencian poet, Auzias March, and in modern times Jacinto Vadaguer, who died in 1902. But Catalan as a rival to Castilian Spanish has no future.

Portuguese literature, so far as the general world of books is concerned, is concentrated in Camoens, the writer of its great epic poem, The Lusiads.

WHY THE LITERATURE OF PORTUGAL WAS MOSTLY WRITTEN IN SPANISH

Though Portugal puts forward the claim to have brought into the peninsula from France the original romance of Amadis, the fact is that the world received it from Spain. Indeed, until comparatively modern times the leading Portuguese wrote their books in Spanish, as it afforded the best outlet to European notice. Thus Jorge Montemayor, the sixteenth-century prose writer, who started a European fashion in pastoral fiction by his pastoral romance Diana, used Spanish, and his book was published in Spain.

The literature of Portugal, always abundant, has been imitative. It has at various periods been derived from Provence, from Castile, from Italy, and from France; and Portugal stands before the world dependent on Camoens as her natural interpreter. He made it the work of his life to be her historical interpreter.

Luis Vaz de Camoens was of ancestral Spanish origin, but the family had been in Portugal for several generations. It was of noble origin but untitled, and Camoens had the education of a gentleman. He was born in 1524, probably at Lisbon. His uncle was Chancellor of the University of Coimbra, where he was educated, and the youth must have been a most diligent student, for his great poem was written far away from books, and yet it contained a wide range of knowledge, classical, historical, and scientific, according to the teachings of his age. His poetry at once caught general attention as more masterly than anything yet known in his country, and he had reasonable hope of securing some suitable appointment. But it was not to be. Owing to a duel arising from a love episode he was banished from Lisbon. His reply was to write a play which aggravated his offence, and he, not expecting forgiveness, went to North Africa as a soldier, lost an eye in a skirmish, and was disfigured for life.

THE EXILE WHO WROTE THE EPIC OF A PEOPLE

Returning to Lisbon, he joined a band of young ruffians who were always ready to draw their swords, and he boasted that he had seen the soles of the feet of many men running in retreat, but no one had seen his. Finally he wounded one of the palace servants, and was imprisoned, being eventually pardoned on the condition that he served as a soldier in India, which was closely connected with Portugal by sea trade.

He sailed in 1553, and did not return for seventeen years. During those years, which he passed in travel, adventure, and constant poverty, he wrote The Lusiads, which tells the story of Portuguese discovery in the East, and incidentally the story of the Portuguese nation. Not only is it the epic of a people, but it finally fixed the Portuguese language, which afterwards became for all time the tongue of Camoens. The judgment of the world has given Camoens a place among the great poets because of its poetic beauty and classical grace.

On his return to Europe Camoens was pensioned by the Portuguese king because of his literary distinction and national service as a poet.

HOW PORTUGAL HONOURED THE MEMORY OF HER NATIONAL POET

Camoens died in Lisbon, at 56, from the plague, and he was buried in the common grave which received the bodies of all who died of that terrible affliction. Three hundred years afterwards some bones that were supposed to be his were recovered and placed in the national pantheon. It was well, for no nation has gained greater distinction in literature from the writings of a single man than Portugal has from Camoens, and his country was his theme.

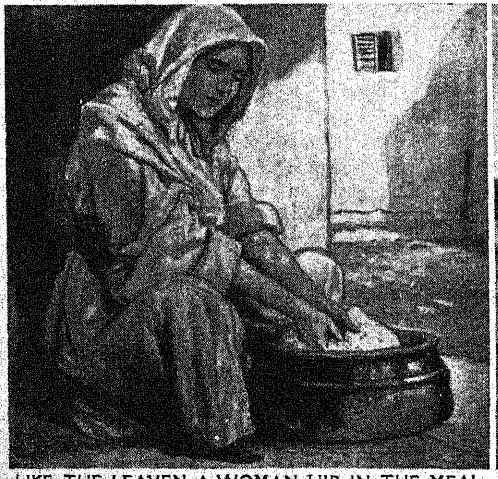
WHAT THE KINGDOM OF HEAVEN IS LIKE

IT IS LIKE UNTO TREASURE HID IN A FIELD

IT IS AS A MAN TRAVELLING INTO A FAR COUNTRY WHO CALLED TOGETHER HIS OWN SERVANTS

IT IS LIKE THE MUSTARD SEED WHICH SHOOTETH OUT GREAT BRANCHES

IT IS LIKE A MERCHANT SEEKING GOODLY PEARLS



LIKE THE LEAVEN A WOMAN HID IN THE MEAL

IT IS LIKE A NET CAST INTO THE SEA

The Story of the Most Beautiful Book in the World

What the Kingdom of Heaven is Like

WHO has not dreamed what the Kingdom of Heaven is like? We wonder as children where it is; we think it up in the skies and far away. The years roll on, and we feel, as they come and go, what Wordsworth felt when he wrote "Heaven lies about us in our infancy." Time passes, youth flies past, and age creeps on, and the Kingdom of Heaven is still in our dreams, but not beyond our hopes. It is ours so to live that the Kingdom of Heaven comes nearer with the years, lies closer round about us as time comes and goes. The peace and happiness that come from goodness are not things far away. We can have them here and now. "The Kingdom of Heaven is within you," said Jesus. Knowing well the yearning of the human heart, He talked much of the Kingdom of Heaven. He left us these little pictures of what the Kingdom of Heaven is like.

THE TRAVELLER INTO A FAR COUNTRY

It is the teaching of this parable of the talents that would make the world a garden of happiness if all men would follow it. Two lessons it teaches. One is that we must be useful in this world. We must be worthy of our opportunities, and remember that we hold our lives in trust. The other lesson we learn here is that love of God reveals itself in service to our fellow-men. We are not to be for ever singing hymns or making prayers in churches.

THE kingdom of heaven is as a man travelling into a far country, who called his own servants and delivered unto them his goods. And unto one he gave five talents, to another two, and to another one; to every man according to his several ability; and straightway took his journey.

Then he that had received the five talents went and traded with the same, and made them other five talents; and likewise he that had received two, he also gained other two. But he that had received one went and digged in the earth, and hid his lord's money.

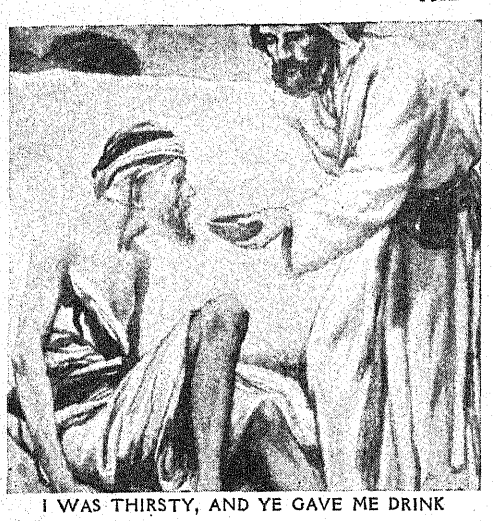
After a long time the lord of those servants cometh, and reckoneth with them. And so he that had received five talents came and brought other five talents, saying, "Lord, thou deliveredst unto me five talents; behold, I have gained beside them five talents more." His lord said unto him, "Well done, thou good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things; enter thou into the joy of thy lord."

He also that had received two talents came and said, "Lord, thou deliveredst unto me two talents; behold, I have gained two other talents beside them." His lord said unto him, "Well done, good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things; enter thou into the joy of thy lord."

Then he which had received the one talent came and said, "Lord, I knew thee that thou art a hard man, reaping where thou hast not sown, and gathering where thou hast not strawed, and I was afraid, and went and hid thy talent in the earth; lo, there thou hast that is thine."

His lord answered and said unto him, "Thou wicked and slothful servant, thou knewest that I reap where I sowed not, and gather where I have not strawed; thou oughtest therefore to have put my money to the exchangers, and then at my coming I should have received mine own with usury. Take therefore the talent from him, and give it unto him which hath ten talents, for unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath. And cast ye the unprofitable servant into outer darkness; there shall be weeping and gnashing of teeth."

When the Son of Man shall come in his glory, and all the holy angels with him, then shall He sit upon the throne of His



I WAS THIRSTY, AND YE GAVE ME DRINK

HE AGREED WITH THE LABOURERS FOR A PENNY

THEY MURMURED WHEN THEY RECEIVED IT

glory; and before Him shall be gathered all nations; and He shall separate them one from another, as a shepherd divideth his sheep from the goats; and he shall set the sheep on his right hand, but the goats on the left.

Then shall the King say unto them on His right hand, "Come, ye blessed of My Father, inherit the kingdom prepared for you from the foundation of the world: for I was an hungered, and ye gave Me meat; I was thirsty, and ye gave Me drink; I was a stranger, and ye took Me in; naked, and ye clothed Me; I was sick, and ye visited me; I was in prison, and ye came unto Me."

Then shall the righteous answer Him, saying, "Lord, when saw we Thee an hungered, and fed Thee? or thirsty, and gave Thee drink? When saw we Thee a stranger, and took Thee in? or naked, and clothed Thee? Or when saw we Thee sick, or in prison, and came unto Thee?"

And the King shall answer and say unto them, "Verily I say unto you, Inasmuch as ye have done it unto one of the least of these My brethren, ye have done it unto Me."

Then shall He say also unto them on the left hand, "Depart from me: for I was an hungered, and ye gave Me no meat; I was thirsty, and ye gave Me no drink; I was a stranger, and ye took Me not in; naked, and ye clothed Me not; sick, and in prison, and ye visited Me not."

Then shall they also answer Him, saying, "Lord, when saw we Thee an hungered, or athirst, or a stranger, or naked, or sick, or in prison, and did not minister unto Thee?" Then shall He answer them, saying, "Verily I say unto you, Inasmuch as ye did it not to one of the least of these, ye did it not to Me."

HEAVEN IS LIKE THESE THINGS

Three little pictures of the kingdom of heaven we get in these five sayings—of the goodness that spreads itself everywhere, of the goodness that brings such peace that men give for it all that they have, and of the purity that knows no evil.

THE kingdom of heaven is like unto leaven, which a woman took and hid in three measures of meal, till the whole was leavened.

Again, the kingdom of heaven is like unto treasure hid in a field; the which, when a man hath found, he hideth, and for joy thereof goeth and selleth all that he hath and buyeth that field.

Again, the kingdom of heaven is like unto a merchant man seeking goodly

pearls, who, when he had found one pearl of great price, went and sold all that he had, and bought it.

Again, the kingdom of heaven is like unto a net that was cast into the sea and gathered of every kind, which when it was full, they drew to shore, and sat down, and gathered the good into vessels but cast the bad away.

Whereunto shall we liken the kingdom of God? or with what comparison shall we compare it? It is like a grain of mustard seed, which, when it is sown in the earth, is less than all the seeds that be in the earth; but when it is sown, it groweth up, and becometh greater than all herbs, and shooteth out great branches, so that the fowls of the air may lodge under the shadow of it.

THE LABOURERS IN THE VINEYARD

First of all the foundation stones of the kingdom of heaven is justice. Men who have agreed on wages must not complain when they are paid, or murmur at the good fortune of others.

THE kingdom of heaven is like unto a man that is an householder, which went out early in the morning to hire labourers into his vineyard. And when he had agreed with the labourers for a penny a day, he sent them into his vineyard.

And he went out about the third hour, and saw others standing idle in the market-place, and said unto them, "Go ye also into the vineyard, and whatsoever is right I will give you." And they went their way.

Again he went out about the sixth and ninth hour, and did likewise. And about the eleventh hour he went out, and found others standing idle, and saith unto them, "Why stand ye here all the day idle?" They said unto him, "Because no man hath hired us." He saith unto them, "Go ye also into the vineyard, and whatsoever is right, that shall ye receive."

So when even was come, the lord of the vineyard saith unto his steward, "Call the labourers, and give them their hire, beginning from the last unto the first." And when they came that were hired about the eleventh hour, they received every man a penny. But when the first came, they supposed that they should have received more, and they likewise received every man a penny. And when they had received it, they murmured against the goodman of the house, saying, "These last have wrought but one hour, and thou hast made them equal unto us, which have borne the burden and heat of the day."

THEY THAT WERE READY WENT IN

AFTERWARDS CAME THE FOOLISH VIRGINS, BUT THE DOOR WAS SHUT

But he answered one of them, and said, "Friend, I do thee no wrong; didst not thou agree with me for a penny? Take that thine is, and go thy way; I will give unto this last even as unto thee. Is it not lawful for me to do what I will with mine own? Is thine eye evil because I am good? So the last shall be first and the first last; for many be called, but few chosen."

THE WISE AND THE FOOLISH

They that are wise prepare. Again and again Jesus taught men the lesson of watchfulness that we learn from this parable of the ten virgins. We must not be idle while others work, and expect the harvest of our neighbours.

THEN shall the kingdom of heaven be likened unto ten virgins, which took their lamps, and went forth to meet the bridegroom.

And five of them were wise, and five were foolish. They that were foolish took their lamps, and took no oil with them; but the wise took oil in their vessels with their lamps.

While the bridegroom tarried, they all slumbered and slept. And at midnight there was a cry made, "Behold, the bridegroom cometh; go ye out to meet him."

Then all those virgins arose and trimmed their lamps; and the foolish said unto the wise, "Give us of your oil, for our lamps are gone out." But the wise answered, saying, "Not so, lest there be not enough for us and you; but go ye rather to them that sell, and buy for yourselves."

And while they went to buy, the bridegroom came, and they that were ready went in with him to the marriage, and the door was shut. Afterward came also the other virgins saying, "Lord, Lord, open to us." But he answered and said, "Verily I say unto you, I know you not." Watch therefore, for ye know neither the day nor the hour wherein the Son of man cometh.

THE MAN WHO SOWED TARES

We build up the kingdom of heaven in this world. Every good deed done, every good seed sown, is building it up. But there are sowers of tares among the wheat, those who do evil not caring, or caring only for their social ends. In the end, however, if we are patient, the good will overcome.

THE kingdom of heaven is likened unto a man which sowed good seed in his field; but while men slept his enemy came and sowed tares among the wheat, and went his way. But when the blade was sprung up, and brought forth fruit, then appeared the tares also.

So the servants of the householder came and said unto him, "Sir, didst not thou sow good seed in thy field? From whence, then, hath it tares?"

He said unto them, "An enemy hath done this." The servants said unto him, "Wilt thou then that we go and gather them up?" But he said, "Nay, lest while ye gather up the tares ye root up also the wheat with them. Let both grow together until the harvest; and in the time of harvest I will say to the reapers, Gather ye together first the tares, and bind them in bundles to burn them, but gather the wheat into my barn."

THE KING AND HIS SERVANTS

Here we find forgiveness, one of the greatest of virtues, and ingratitude, one of the greatest of sins. Both are sown widely through this world. The one we should encourage and cherish; the other we should put from us and despise. As all need forgiveness, so all must forgive.

THEREFORE is the kingdom of heaven likened unto a certain king, which would take account of his servants. And when he had begun to reckon one was brought unto him which owed him ten thousand talents; but forasmuch as he had not to pay his lord commanded him to be sold, and his wife and children, and all that he had, and payment to be made. The servant therefore fell down and worshipped him, saying, "Lord, have patience with me, and I will pay thee all." Then the lord of that servant was moved with compassion, and loosed him, and forgave him the debt.

But the same servant went out, and found one of his fellow-servants, which owed him an hundred pence; and he laid hands on him, and took him by the throat, saying, "Pay me that thou owest." And his fellow-servant fell down at his feet, and besought him, saying, "Have patience with me, and I will pay thee all." And he would not, but went and cast him into prison till he should pay the debt.

So when his fellow-servants saw what was done, they were very sorry, and came and told unto their lord all that was done.

Then his lord, after that he had called him, said unto him, "O, thou wicked servant, I forgave thee all that debt, because thou desiredst me. Shouldest not thou also have had compassion on thy fellow-servant, even as I had pity on thee?" And his lord was wroth, and delivered him to the tormentors till he should pay all that was due unto him.

So likewise shall my heavenly Father do also unto you if ye from your hearts forgive not everyone his brother their trespasses.

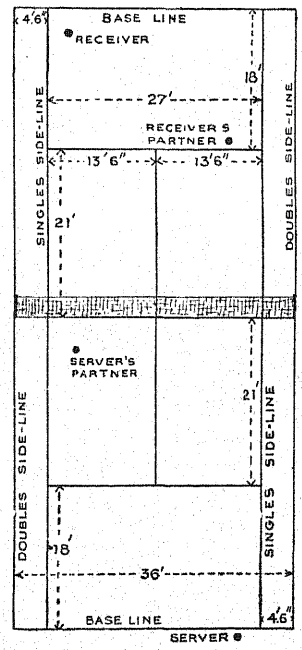
THE GAME OF LAWN TENNIS

THE game of Lawn Tennis is a very healthy exercise, and its amazing popularity is well deserved.

The lawn, which should be as level as possible, should be marked out with white lines, as shown in the picture, and the net placed across the court midway between the two base lines.

The game is for two or four players; and is known as a ".single" when two only are playing, and a "double" when four are playing. Each player should choose a racket to his liking, one that is not too heavy and that is comfortable to hold; and four balls are used as a rule.

The net should first of all be adjusted so that the top in the centre is equal to the length plus the width of the racket from the ground. It is usual to toss for the choice of ends or service, the winner of the toss choosing the end of the court he prefers to play from; or, if he wishes to serve first, he may do so, and his opponent has the choice of ends.



A glance at the picture will show where the server and the receiver should stand—the server just behind his base line and to the right of the centre line; the receiver in front of his own base line and diagonally opposite to the server. In the single game these two are, of course, the only players.

The four sections in the centre of the court are known as the service courts; and the server is to hit a ball so that it clears the net and bounces for the first time in the service court on the other side and diagonally opposite to him. The receiver is to return the ball, before it touches the ground a second time to the server's side of the net so that it falls anywhere within the main court on the server's side.

If the server's first ball does not drop into the proper service court it is a fault, and he is allowed to have another try. If, however, this is also a fault, his opponent gains a point. If the ball, in the course of its flight, hits the net and continues its course into the proper service court it is known as a "let" and another service ball is allowed.

When the receiver has returned the ball to the server's side the server must hit it, before it bounces a second time, back to the receiver's side in any part of the main court. This play is kept up until one of the players fails to return the ball into his opponent's court, or until the other player hits the ball right outside the court without the ball having first touched the ground. If a player puts himself in default through either of these causes his opponent is awarded a point. The server sends his next ball over from

the left of his base line, the receiver also crossing over to the left of his court, and so on through the game.

Each player's first point scored counts fifteen; the second makes his score thirty; the third forty; and the fourth is game. But if both players have a score of forty it is called "deuce," and the game continues. The next point scored is known as "vantage server" or "vantage striker," according to whether it is scored by the server or the receiver. If the following point is scored by the same player he wins the game, but should the other player win that point the score becomes deuce again.

For the next game the player who has been the receiver becomes the server, and the old server becomes the receiver, each player retaining his own end of the court. It is usual for the players to change ends every three games, or otherwise by arrangement, so as to avoid one player having undue advantage owing to irregularities of the court, or the position of the Sun.

The first player to win six games wins the set, unless his opponent has scored five games, when, if it has been arranged that the game is to be a long one, play must be continued until one player is two games ahead of the other.

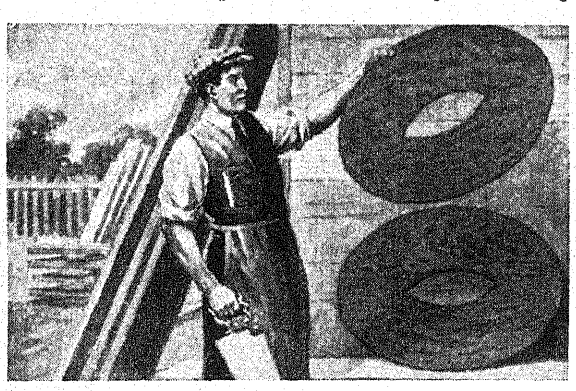
For playing doubles it will be seen that the wider court is used. The server sends balls to each of his opponents alternately; and each player serves for a whole game, in turn, first one side serving and then the other.

When the idea of tennis has been thoroughly grasped it will be time to practise many fast and tricky shots that will make the play more difficult and exciting, but it is best to start slowly and make sure of the game.

THE PROBLEM OF THE CIRCULAR TABLE-TOP

CARPENTERS had many problems to solve during the Great War, owing to the difficulty of getting sufficient supplies of wood.

But probably no carpenter has been more puzzled than Mr. Silas Brown, who was given the two curious wooden ovals shown in the picture, and was asked to make them into the circular top of a table.



The ovals were made of very fine mahogany. They were beautifully marked and polished, and had probably formed part of some old piece of furniture.

Mr. Brown was asked to cut them up into the smallest possible number of pieces, and then join these together carefully to form the complete top of a round table, with, of course, no hole in it.

"And, mind," said the customer, "I don't want a mosaic made up of all kinds of little pieces. You had better get two pieces of paper corresponding in size and shape to those ovals, and practise on them first. Show me how you propose to cut up the wood, and I will tell you if I approve."

Mr. Brown puzzled the thing out, and found a way of cutting the two ovals up into eight pieces which would fit together and form a perfect circle.

The customer, however, was not satisfied, and insisted that there should not be more than six pieces. Mr. Brown went away and had another try, and this time he was a whole day thinking out the problem. But at last he managed to hit upon a solution of which he was very proud, and which greatly pleased his customer. Each oval was cut up into three pieces, and then the six pieces put together made a perfect circular top for the table, and no wood was left over.

Mr. Brown's two solutions of the problem are given in Section 42 of Group 18.

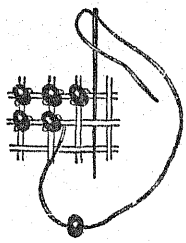
ANSWERS TO THE PUZZLE PICTURES ON PAGE 4948

In each of the pictures on page 4948 there is something wrong. These are the explanations:

1 Rose-leaves cannot grow on a sprig of oak. 2. The Moon is the wrong way round. It shines by reflected light from the Sun, and therefore the part lit up should face the Sun. 3. A bear has scarcely any tail at all. 4. There was no February 29 in 1900, though 1900 was a leap year. Once in every hundred years the extra day is dropped to correct the Calendar. 5. A horse has not cloven hoofs. 6 Lilies of the valley do not grow singly but one above the other on a stem. 7. The keystone is the wrong way up. 8. The trigger is the wrong way round. 9. There could be no sunset at five minutes past twelve. 10. A crab has eight legs, not six. 11. The lily has six petals. 12. The north should face the south, and the east should face the west. 13. The motto under the Prince of Wales's badge is "Ich dien." 14. A sprig of hawthorn in blossom cannot at the same time bear berries, which do not develop until three months after the blossom has gone. 15. The feet are incorrectly drawn. Geese have webbed feet.

A BEAD BELT THAT A GIRL CAN MAKE

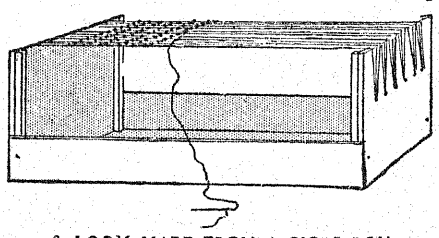
THERE are three ways of making a bead belt. We can string the beads together without attaching them to any material; we can make the belt on a loom, which sounds very difficult, but is really a good way and very interesting to do; or we can sew the beads on to canvas. As the last is quite easy, we are going to follow that way first, and later on find out not only how to use the bead loom, but how to make one for ourselves.



1. SEWING ON THE BEADS

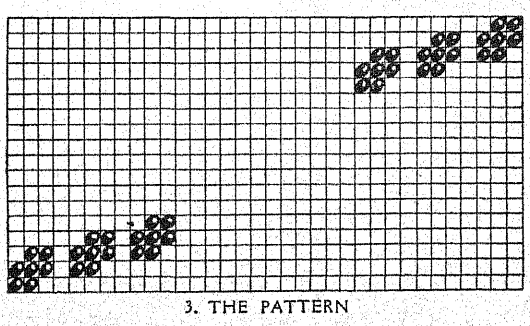
Now for the materials. We shall need a strip of fine canvas, which may be cut from 1½ inches to 2 inches wide, according to the width of belt desired. The length of the strip must, of course, depend on the measurement of the waist.

But as we are going to make a particular belt, we decide that it shall measure 21 inches in length and 1½ inches in width. As to the material, Penelope canvas, No. 50, 27 inches wide is suitable, and a quarter of a yard would make several belts. A fine cream-coloured French canvas is also used for bead-work, but is a little dearer. We shall need a reel of white linen thread, or, better still, some white dental floss. The floss looks better and wears well, provided the beads are good ones and do not cut it. Waxing the thread or floss a little prevents injury. It would never do to have the thread break and beads drop off the belt. The choice of beads depends much on the pattern to be worked. The opaque Tosca beads would suit our design. They must be evenly formed and of a size to fit the hole or mesh in the canvas. We shall need about six bundles of pale blue, one of white, and a few amber crystal beads, all of the same size.



2. LOOM MADE FROM A CIGAR-BOX

We can buy bead needles, and should try one through the canvas and a bead to see that it is the right size. No. 12 will probably fit. The pretty design we have chosen for our belt has three white daisies in a row, at intervals of 1 inch between the rows, placed along the edges of the belt, as shown in picture 3. The daisies will go with any shade, therefore the colour of the background can match that of the dress with which the belt is to be worn. We will make it pale blue. It is well to cut the canvas about 24 meshes wide, so that the three meshes are left for turnings at each edge, and the eighteen meshes between filled with beads. The ends of the canvas must also be cut to allow for turnings; so we make the strip a little longer than 21 inches.



3. THE PATTERN

The beads are sewn on to the canvas where the bars cross, and they always lie crosswise on the canvas, or diagonally. We secure the knotted end of the thread or floss on the wrong side of the canvas, beginning at the left bottom corner of one end. To sew on a bead we thread one, pass the needle down into a mesh, pass it behind and under the cross-bar below, and bring it through the mesh, as shown in picture 1. Beads are thus sewn on till the end of the row is reached.

As all the beads must slant in the same direction, when we reach the opposite end of the belt we must turn the canvas upside down and proceed with the next row.

We must look carefully at the pattern to find out where to sew the six white beads for the daisy petals and the amber ones for the centres. It is a good plan to mark with a pencil the position of the daisies on the canvas, so that we shall know where to replace the blue beads with the white and amber ones for the flowers.

When the beads cover the canvas we stitch down the turnings and line the belt with sateen to match the blue ground-work beads. Then some pretty clasps can be sewn on to the ends.

Small beadwork articles can be made by threading the beads together like a network without using any material for a support, and keeping two needles and threads in use while threading them. The work is then backed to give it a foundation.

This method is not advisable where a large surface is to be covered. It is somewhat like that of the loom-work now to be described.

A bead loom is a small and most useful contrivance for making many bead articles. We can buy one at a fancy-needlework shop, or we can make one out of an oblong wooden cigar-box in the way shown in picture 2. We remove the lid, and cut down the two sides by ruling a line along them one inch from the bottom. After passing a sharp knife several times along the line, the wood will snap off, and the rough edges can be smoothed with sandpaper.

The small strips of wood half an inch square seen at the ends, to match the height of the box, are nailed inside the corners to strengthen the wood. Along the tops of the end pieces we cut little notches one-sixteenth of an inch apart. These are to hold the warp threads, which are stretched across the open box, and fastened round six little screw-eyes below, in the end pieces of the box.

This home-made bead loom will be found useful for all kinds of purposes. A simpler one still can be made by nailing two pieces of perforated cardboard to the wooden frame of a school slate.

The woof threads should be just two-thirds as coarse as the warp ones. For instance, a warp thread No. 60 would have a woof thread No. 90. A bead needle, size No. 11, and loom beads, about No. 4-0, will be needed.

To make our belt, which, it will be remembered, is eighteen beads wide, we fasten to the loom twenty warp threads about 26 inches long. The two outer ones are to form the edges of the belt.

First we take a needleful of white linen thread and tie it to the left top warp thread, and then thread eighteen beads on to it, according to the pattern.

Now comes the important thing in bead loom-work. We carry the needle with the string of beads *under* the warp thread, so that when the fingers press the beads upward from underneath, they come up through the spaces between the warp threads. To keep them in place we pass the needle through the beads from right to left *over* the warp threads this time. The row of beads is now secure. We proceed with the other rows, picking up the blue, white, or amber beads according to pattern. The woof thread is fastened off by passing it through two or three rows of beads.

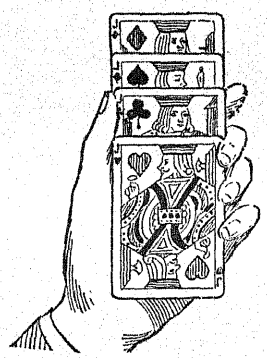
Having made the belt the desired length, we gather the warp threads into four bundles of five each and tie these up close to the beads. They can be stitched on to a piece of silk or other material, and suitable clasps attached to the ends.

The daisies will look particularly well on beadwork done with the loom, because the beads are placed perpendicularly in threading them, not diagonally, as they are in the canvas-work we have described.

THE ROBBERS AND THE SOLDIERS

THIS card trick is very simple to perform and yet rather mystifying.

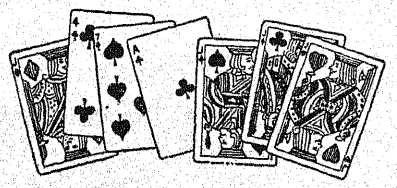
The conjurer has a pack of cards, and he takes out the four knaves, which he holds up to the company in the manner shown in picture 1. Then he tells the company his story. "Once upon a time," he says, "there were four robbers in Spain, and their robberies had caused them to be pursued by a band of Spanish soldiers. These four knaves are the four robbers. As they fled they came to a ruined castle, and the pack of cards here is the castle. The robbers entered the castle"—here the conjurer lays the cards in his hands, face downwards, upon the rest of the pack—"and held a council. They decided that one of them should keep watch."



1. THE FOUR ROBBERS

At this point he lifts the top card and throws it, face upwards, upon the table, then resuming: "That is the robber who kept watch, the other three went down to the dungeon to sleep."

Here he takes the three cards on the top of the pack one by one, and, without allowing their faces to be seen, he puts them at the bottom of the pack. He keeps up his story as he does so: "These are the three robbers who went down to sleep, and it was agreed that, if the watching robbers saw the soldiers approach, he should at once call the others. Shortly after midnight the robber who was keeping watch saw a company of soldiers approaching. He immediately called to the others: *Come up, come up, come up*—here the conjurer flips the edges of the pack with one hand—" and immediately the robbers all sprang to their feet."



2. THE CARDS SPREAD OUT

At this point he takes the three top cards in the pack and throws them, face upwards, on the table. They are the other three knaves, which the members of the audience are positive that they saw placed at the bottom of the pack. How did they get there?

The explanation is very simple. The three knaves were not put at the bottom of the pack at all, although they seemed to be. The conjurer had seven cards in his hand, not four. Between the first knave and the second knave were three other cards—any three—from the pack, but they were placed so that they could not be seen.

If the conjurer had spread out the cards, which, of course, he would not do, as it would have exposed the trick, they would have been like picture 2. Thus the three cards that were put at the bottom of the pack were the three hidden cards, not the knaves at all, and the knaves remained at the top of the pack all the time

It is an excellent trick for a beginner

HOW TO TALK TO THE DEAF AND DUMB

THE scientific method of educating the deaf and dumb, or, as they are more accurately called, deaf mutes, is by word of mouth.

They are taught to watch the lips of the person speaking to them, and from the movements of the mouth to understand what he is saying. It is amazing with what skill a well-trained deaf mute is able to follow a conversation carried on like this.

The older method of communicating with persons afflicted in this way was by speaking with the hands; and, as there are still many thousands of deaf mutes who know of no other method of carrying on a conversation, it will be well if every boy and girl learns the deaf and dumb alphabet, so that, should the necessity arise, they will not be cut off from all communication with the deaf person.

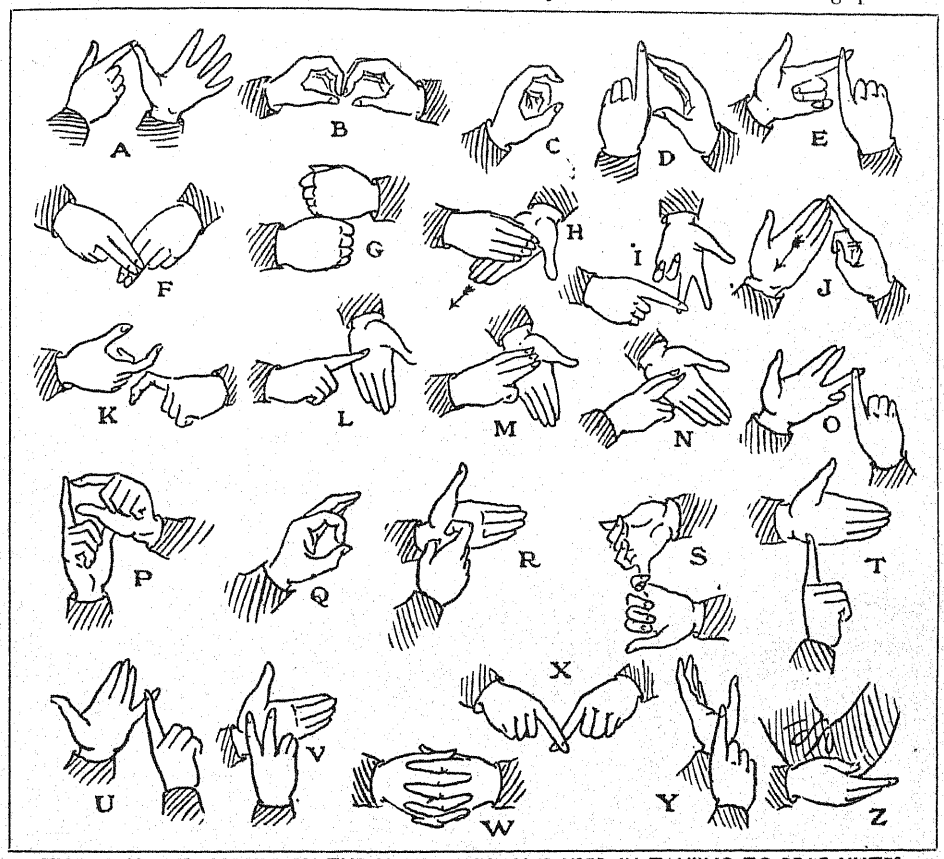
The complete alphabet is given here, and can be easily learned from the pictures.

In every case, with the exception of H and J, the hands are stationary while in position to form the letter.

In the case of H, the whole of the right hand is moved down the left palm in the direction of the arrow; and to form J the right forefinger should be drawn down the left hand from the tip of the middle finger, as indicated in the picture by an arrow.

In talking to a deaf mute the words are spelled out, and it might seem that this would be a very tedious and lengthy process. As a matter of fact, it is astonishing with what rapidity a conversation can be carried on when those using the sign language are skilful and well practised in the art.

One may sometimes see at a place of worship a little group of deaf mutes seated in a corner of the church, with an interpreter giving in the finger language the substance, at any rate, of the sermon being preached



THE ALPHABET, FORMED BY THE HANDS, WHICH IS USED IN TALKING TO DEAF MUTES

To make a break between the words it is common to separate the hands and jerk them downwards, or to make the motion of snapping the fingers.

Of course, those who talk much with deaf mutes in this way soon acquire a whole number of signs to express well-known words or thoughts without spelling them. For instance, holding up the right thumb means good, and the right little finger signifies bad. To point upward means God.

Numbers up to 20 are denoted by holding up the necessary number of fingers, and large numbers are usually spelled right out.

A SALT WATER AQUARIUM.

THERE are few hobbies more interesting than the keeping of an aquarium, and we read on page 995 how to make and stock a fresh-water aquarium.

We should always begin with fresh-water fish and plants, as these are much easier to manage than marine creatures; but when we have had some experience with them, we can go on to form a salt-water aquarium, and we shall find this even more interesting and instructive than the other.

The variety is greater, and the fact that we are dealing with creatures and plants that live in the mighty ocean, and the curious form and habits of some of the inmates of a marine aquarium, all lend a vivid interest to the hobby that even the fresh-water aquarium, interesting though it may be, does not possess.

Of course, if real sea-water is available that is the best thing for the purpose, but it is not an absolute necessity, and if there is any real difficulty, we can make artificial sea-water that will do quite well for the aquarium, and will support marine life as effectively as real sea-water.

We can buy from most chemists sea-salt in little bags, and the chemist will tell us what proportion of the salt is required to a given quantity of water. Or, if it is not easy to obtain the sea-salt ready prepared, we can get the salts separately, and make our sea-water in this way. Dissolve in a gallon of fresh water—spring or rain water for preference—the following substances: common table salt, $3\frac{1}{2}$ ounces, and Epsom salts, $\frac{1}{4}$ ounce (both avoirdupois weight); and chloride of magnesium, 200 grains, and chloride of potassium, 40 grains (troy weight).

There are other substances in real sea-water, but these form the principal ingredients, and are quite sufficient.

The water, of course, evaporates, and the great mistake that many people make is to renew the stock with sea-water. But in the process of evaporation only distilled water is absorbed by the atmosphere, and the various salts are left in the tank.

If we fill up the aquarium with salt water from time to time, the result will be not sea-water or its equivalent, but a dense and strong brine which would kill all living things in it. So we replace the evaporated water with fresh water, and if we can get clean rain-water all the better.

In filling the tank in the first place with sea-water, it is necessary to put a mark on the glass to show how far up the water comes, then, in renewing to make up for evaporation, we shall know exactly how much fresh water to pour in, because we should keep up the fluid always at the same level. A strip of stamp paper, stuck on the tank to mark the height at which the water stood in the first place, will prevent us from making mistakes.

Before putting in our marine creatures, we should prepare the aquarium.

When the vessel is ready, we can make in a suitable place a sheltered corner, with stones or pieces of rock, and after filling with water, we must get some seaweeds, for these help to keep the water sweet and pure. The green varieties of seaweed are the easiest to keep in an aquarium. The way to get them living is to take a chisel and hammer, and chip off a suitable piece of rock with the seaweed attached.

The weed known as green leaves is the best. The rock should be placed in position in the gravel at the bottom of the tank, and in a day or two sea bubbles will be seen round the weed. This is proof that the seaweed has adapted itself to its new conditions.

There are many very attractive kinds of seaweed found round our coasts that would look well in an aquarium, but unfortunately they will not live in artificial conditions, and so cannot be considered.

The most interesting creatures for our purpose are sea anemones. They may be obtained at quite a cheap price at any naturalist's shop; but, if we live at the seaside, we may get them direct. It is very good fun hunting for them in the rock-pools that are found at so many places on the coast.

Six or seven varieties may easily be kept; but the hardiest of all is that known as the beadlet. They attach themselves to the stones, and appear quite happy in captivity. They seem always hungry, and a small anemone in an aquarium was once seen to swallow a halfpenny, which cut it in two, whereupon the bottom half of the creature grew a mouth for itself and became a complete anemone—to the great astonishment of the boy who owned the aquarium!

A few of the ordinary common periwinkles may be put in the aquarium, with one or two limpets. Shrimps or prawns, too, are very interesting creatures, and they lend a fine touch of brightness to the aquarium, for their eyes glow like phosphorus, and their transparent bodies are daintily tinged with various colours.

But we must not be tempted to put any crabs into our tank, for, interesting though they may seem, they are such brigands that nothing will be safe in the water with them.

Of course, any creatures that die, whether they be anemones, shrimps, or any other, must be removed at once to save the water from becoming impure owing to the decomposition of the body, which would soon be fatal to the other inmates.

Owing to the limited space which, of necessity, any private aquarium must furnish, there are not a great number of fish found round our coasts that are suitable for captivity in a tank. We cannot keep anything very

large. The basse and the curious looking pogge, a relation of the common bullhead, thrive very well in a small aquarium. They may often be obtained from a shrimper at the seaside, as he frequently catches them in his net.

The blenny and the goby, too, live well enough in captivity. Gobies have a curious habit, both in their free life and when confined in a tank, of darting very quickly hither and thither. As to feeding these creatures, they will eat shrimps or other small sea creatures, and the anemones can be fed upon pieces of meat.

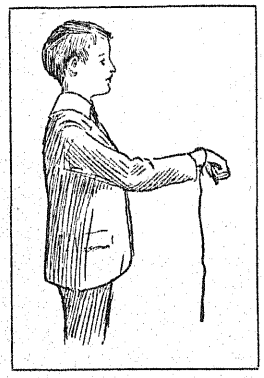
We must be very careful in starting a marine aquarium not to overstock the tank.

Its capacity for fish and other creatures depends, of course, upon its size; but it is far better to have a few inmates than too many. Probably more disappointments occur through the error of overcrowding than through any other mistake that beginners make. All the rules as to cleanliness, keeping from direct sunlight, and other instructions we may read on page 995 in connection with the fresh-water aquarium, which it will be well to study before attempting to make a marine collection.

THE MAGICIAN'S JACKET

It is always well for a conjurer to give his trick a name that is likely to deceive his audience, and we may impress our friends by calling this trick The Magician's Jacket.

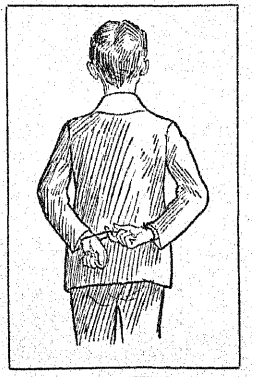
The magician's jacket has nothing magical about it at all. It is only an ordinary jacket, such as any boy wears. In this trick it is not the conjurer who really does the trick: it is the member of his audience whom he asks to assist him, and who acts as an accomplice without knowing it.



1. ONE WRIST TIED

The conjurer asks any one of his audience to tie his hands together behind his back with a stout piece of string, and after he has had his hands securely tied he takes off his jacket, and afterwards shows that his hands are securely tied, just as they were before. This looks impossible; but we shall see how it can be done easily.

The conjurer takes a piece of string. It should be rather hard string, but it need not be too thick, and about 18 inches long. He then asks someone to tie one end of it round one of his wrists, as seen in picture 1. Then, putting his two hands behind his back, he asks that his other wrist may be tied with the other end of the string in the same way, leaving just a few inches between the two wrists.



3. SLIPPING THE HAND

It is here that the conjurer manages so that the friend who is making the knot acts as an unconscious accomplice. While the second wrist is being tied, as seen in picture 2, the conjurer *pulls the two wrists apart, so that the string between them is quite tight.* This causes the friend, unknown to himself, to tie a slip-knot. Now comes the anxious time. First, the conjurer asks someone to fold his jacket back from his shoulders, as he cannot get his hands to his own shoulders. Then he stands back a little way from the audience. He puts one finger of the hand that was tied first behind the knot of the second wrist, as seen in picture 3, and a little pull will enable him to widen the loop round the wrist, so as to be able to withdraw the wrist from the loop.

2. BOTH WRISTS TIED

Having done this his two hands are no longer tied together; but he must be careful not to let the audience see this. He pulls off his jacket without showing his hands, and, as the jacket falls behind him, he must be careful to replace his free wrist in the free loop before showing that he has succeeded in getting his jacket off.

The best way for him to do this is to go down on his knees with his jacket behind him, and to do it while his hands are concealed. Then, when he has got his wrist in the loop again and has pulled up the loop tight as it was before, he comes forward, with his jacket in one hand, and receives the applause which he deserves. He asks the friend who tied the knot, and anyone else who cares, to examine it, and say if it is as it was before. Then he asks someone to cut the string from his wrists.

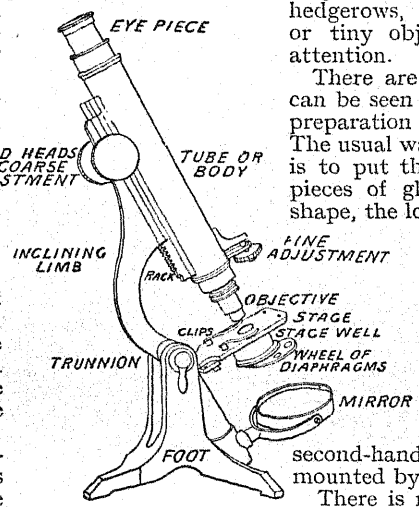
This is an entertaining trick, and practice will enable any boy to hold his wrists so that his friend cannot help making a sliding knot. But it should be practised a few times before being shown in public. Nothing is more damaging to the reputation of a conjurer than a clumsily performed trick

HOW TO USE A MICROSCOPE

ON page 1909 of this book we read an account of the strange things that we may discover for ourselves by the use of a microscope, that wonderful instrument that opens for us so many obscure pages in Nature's books. We learn there what a microscope can reveal. Here we shall see how to use the instrument. By studying the picture on this page we can see the purpose of the different parts of the microscope.

The *tube* or *body* is the long, round portion that is really explained by its name. The *eyepiece* is at the top end of the body, and at the other or lower end of the body is the *objective*, or the magnifying glass nearest to the object to be examined.

The object is placed upon a *stage;* usually the object is mounted upon a small glass slide or between two small pieces of glass, which are then placed upon the stage and held in position by the help of the *spring clips* seen upon the stage in the picture. Under the stage is a *stage well*, which has beneath its lower end a *wheel of diaphragms*, or a *rotating diaphragm plate*, as it is also called. The diaphragm plate has in it a number of holes, and the entire plate or wheel can be turned round, so that any one of the holes desired may be at the bottom of the well, and the light reflected from the *mirror* below is made to shine through the hole which is in use.



The reason why these different holes are provided is because at different times we may want to have more or less light shining upon an object. By turning round the diaphragm wheel we can bring into use a hole that will let through the quantity of light that we need.

Now let us turn to the frame of the microscope and see how the parts there are named and learn their use. There is the part marked *foot*, which is really the base with three feet. This supports the body and every other part of the microscope. Next we have the *trunnion*, the place where the frame that carries the tube is fixed to the foot or base. The frame swings in the trunnion, and by loosening the screw at the trunnion we can swing the body of the microscope into a more inclined, or into a more erect, position. Next we have the *inclining limb*, which rests in the foot at the trunnion, and has two *milled screw-heads*. By turning these screw-heads we can lengthen and shorten the distance between the eyepiece and the object, so as to bring the object we wish to examine into better *focus*, or to bring it so that the eye can see it plainly, and not merely as a blurred outline.

But these screwheads which work the body up and down in the *rack* do not provide a fine enough adjustment to be quite right. Therefore there is, right in front of the body, a *fine adjustment screw*, which makes it possible to get exact adjustment in order to render the object under examination quite distinct, so that we can see clearly the hair on a fly's wing, or the little swimming things that live and fight and multiply in a drop of stagnant water.

Having seen the use of the different parts of a microscope, we may now learn something about the objects that we may desire to see magnified.

All around us are countless things that will make us marvel as we see them with the sharper eyes that the microscope can lend us.

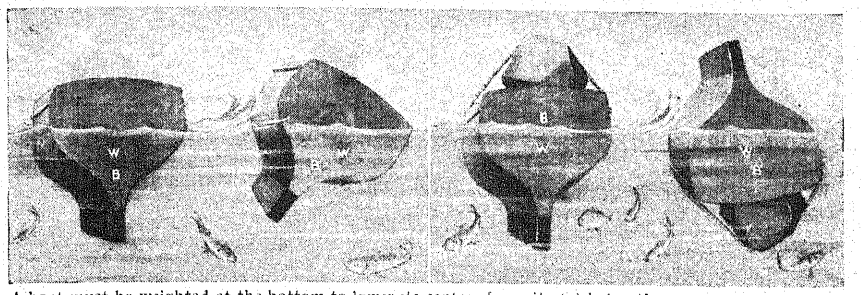
We can go into the garden, or into the hedgerows, and collect any insect or tiny object that attracts our attention.

There are not many objects that can be seen properly without some preparation and suitable mounting. The usual way to mount the objects is to put them between two small pieces of glass, cut to a suitable shape, the lower piece of glass being of ordinary thickness, and the upper piece, called the cover piece, being very thin. But to mount objects properly in microscope slides requires a good deal of skill, and it may serve our purpose much better to purchase second-hand specimens already mounted by experts.

There is no limit to the wonders that the microscope reveals. We shall see great jaws, feet, claws, eyes that we never suspected to exist in anything so tiny. The spiders are really terrible. There is scarcely a tool or a weapon made by man that has not been anticipated in the structural form of Nature's tiniest creatures. We find many insects provided with what look like chisels, saws, scissors, and files.

If we would see the beautiful colours that Nature gives to some of her creations, we must take the wings of some butterflies and let the light from the microscope mirror strike the glorious scales sideways; then we shall have a picture in colour that the most brilliant painter could not equal.

Animate and inanimate Nature provide a wealth of material for our wonderment and instruction. Even the golden pollen dust that we rub off the flowers with our fingers is seen under the microscope to be of globular, elliptical, and other shapes, beautifully marked with dottings and ribbings. The pollen of each flower differs from that of all others, and each has its peculiarities and its special interest.



A boat must be weighted at the bottom to lower its centre of gravity (B) below the centre of gravity of the water the boat displaces (W). The boat will then rock, but not capsize. If, however, by putting a weight on deck we raise the boat's centre of gravity above that of the water displaced, then the boat easily capsizes.

THE CENTRE OF GRAVITY

We must understand something now of what is called the centre of gravity. It will throw further light on the problem of equilibrium, or balance.

In the case of any object there must be, as we can imagine, a point around which the whole of it could be balanced. The amount of matter in the body would be so disposed all round that point that if it were hung at that point by a thread it would stay in that position. It is as if all the matter of the body were really massed together at that point, which we call its centre of gravity. Probably a better term would be its *centre of mass*.

If we have a round ball made throughout of the same material, the centre of the ball will be its centre of gravity. Now, suppose we take a square board with the intention of finding its centre of gravity, assuming that the board is made of the same material and is the same thickness throughout. We want to fix a single thread to the board at one point so that the thread will support the board horizontally. That point will be the centre of gravity.

Now, we all know what a diagonal is—the line joining opposite corners of such a board. If we draw the two diagonals the point where they cross each other is the centre of gravity. That is all very well, but it is not quite so easy to find the centre of gravity of a body that has an irregular shape. Suppose that, instead of a square board or a round one, we had a quite irregular shape, and wished to find the point at which we could support it so that it would lie evenly. Let us pick up the board, tie a string somewhere to its edge, and let it hang steady. If we draw a line straight down the board continuing the line of the string, the centre of gravity will be somewhere in that line. Now, it is a very interesting fact that we should be able to say this for certain, and we must try to understand why we can do so. When the board hangs steadily from the string, there must be, as in any other case of equilibrium, a balance of forces.

These forces, of course, are gravity pulling downwards and the tension of the string pulling upwards. Now, as these two forces act equally and oppositely, the centre of gravity must be somewhere in the line of them. If the centre of gravity were to one side of the string we should have what is called a *couple* of forces. Gravity and the pull of the string would be acting not in the same straight line, but oppositely, in parallel lines, and this couple would mean that the board was twisted until the centre of gravity *did* come to lie under the string. The easiest way for us to understand this—which is

perfectly simple—is to draw a diagram for ourselves as we read it. First we can draw a diagram showing what really happens; then a diagram showing the board with the centre of gravity to one side of the line downwards from the string; and then we can see how the couple of forces is bound to rotate the board, or turn it round.

HOW WE MAY FIND THE CENTRE OF GRAVITY OF A BOARD OR A PLATE

Now, we laid down no condition as to the point the board was to be hung from. No matter from where it is hung, what we say is true. Suppose, then, that we hang it up again from some second point, and then draw the line downwards from the string, the centre of gravity will be somewhere in that line, as we said before; but we know that it is also somewhere in the first line we drew. Now, there is only one point which is common to both lines, and that is the point where they cross each other. The centre of gravity of the board is there. If we have made our experiment precisely, and if we can attach a wire or a thread to the board exactly at that point, we shall find that the board will hang horizontally like a table-top. Of course, we can try the same experiment with a plate, or a slate, or any similar flat object.

If we take such a complicated thing as the human body, we certainly cannot easily find its centre of gravity. The body is irregular in shape, and is made of different parts of various densities. Nevertheless, it has been possible by long study to find one deeply interesting fact, one of the most important facts of the body, because on it depends the erect attitude, which means the freedom of the hands from purposes of walking, and the chance to make use of them for so many purposes.

THE GREAT JOINT THAT DIVIDES OUR BODIES INTO TWO HALVES

If we look sideways at anyone walking, or if we look sideways at a skeleton, we can see that the hip-joints make the great joint which really divides the body into an upper half and a lower half. As we know very well, the trunk and head and arms can swing backwards and forwards on the lower limbs at the hip-joint. Now, suppose a line were drawn straight down from the centre of the hip-joints of anyone standing. We have here a problem very like the problem of the board hung by a string. In this case the support is below instead of above, but that does not matter.

If we understand the principle of the centre of gravity, we can see for certain what must happen to the upper part of the body, as it is supported through the straight line down to the ground, from the hip to the heel. If the centre of gravity of the trunk and head lies so that the line dropped from it will lie in front of the line from the hip-joint, the body must topple forwards. The centre of gravity of the upper part of the body is found in front of the line through the hip-joints in the case of animals, and that is why they have to walk as they do. Only by muscular effort and a certain degree of skill can a horse or a dog walk on its hind legs.

WHY IT IS DIFFICULT FOR BABIES AND ANIMALS TO STAND UPRIGHT

Even of the man-like apes, including the wonderfully erect gibbons, which we may see any day at the Zoo, it is true that the centre of gravity lies in front of the hip-joints. They can walk very well for a time, but it costs them labour, and they can scarcely stand. A very small baby is in exactly the same plight as these animals.

But as the baby grows the curve of its backbone changes in such a way that the centre of gravity of the trunk now lies, as it does in all of us, behind the hip-joints. The two lines dropped to the Earth, one from the hip-joints and the other from the centre of gravity, are parallel, and the forces acting through them make a couple, so that the trunk and head tend to rotate and roll backwards to the ground at the hip-joints, leaving the legs erect. That, however, is a thing which we never saw accomplished even by an acrobat.

It is prevented by the special development in our bodies of two huge bands of fibres, one in front of each hip-joint, which prevent the trunk from rolling backwards under the influence of gravity. This beautiful arrangement means that, instead of standing upright only by muscular effort and careful balancing, we do so in virtue of self-acting mechanical principles.

Questions of equilibrium and centre of gravity are of the gravest practical importance whenever the balancing of anything matters. Take, for example, one of the most common and dangerous of accidents, happening, somewhere or other, almost every day. We very often read or hear that a rowing-boat has been upset

and someone has been drowned. Except where the boat has been in a rough sea, it is safe to say that in every such case someone has been foolish. There is a simple rule of safety which we all ought to know and act on; it is that not more than one person at a time should be standing up in a rowing-boat, and the lower he crouches when he moves about the less danger there will be.

We see that this is a problem in equilibrium, and the whole question of equilibrium depends on the centre of gravity. If the centre of gravity of the boat were in its keel, as in the case of those little toy bottles with half a bullet at their base, then the boat could not be so easily upset; it could be tilted or turned upside down, but, at any rate, it would right itself.

This is a case, of course, of stable equilibrium, where any disturbance means the raising of the centre of gravity. When we build what is called a lifeboat, we provide it, among other things, with a very heavy iron keel, which means that the centre of gravity is kept so low that, with the help of other arrangements, the boat, even when it is upset, has the power to right itself. But in an ordinary rowing-boat there is no heavy iron keel, and the greatest factors in determining its centre of gravity are the bodies of the occupants.

WHY A ROWING-BOAT CAPSIZES WHEN PEOPLE STAND UP IN IT

Directly we move about the centre of gravity of the boat is raised, and any disturbance is likely to lower it, which means that the boat goes over. If two people stand up together—especially if there is no one else in the boat—the risk is very grave indeed. The accidents that cause the loss of so many precious lives every year are usually due to two people standing up in a small rowing-boat, in defiance of the laws of equilibrium.

It required a great deal of experiment and labour to discover how to make a boat which should have its centre of gravity so placed that practically nothing could upset it. The Royal National Lifeboat Institution has such a boat, and probably the most essential thing about it is the lowness of its centre of gravity. There are other qualities, such as the power of righting itself when upset.

All these questions apply, of course, to great ships as well as to small ones, and it is a matter of the utmost importance that the weight of a ship shall be rightly distributed. It would be very easy to build a ship so that, when a wave made it roll, its tendency would be to roll over still further and overturn.

HOW THE BALLAST OF A SHIP PREVENTS IT FROM TURNING UPSIDE DOWN

We know that when a ship rolls to one side because of a wave, it rolls back again, but it may never have occurred to us why it does this. Now that we have learned Newton's first law of motion we shall naturally ask this question. The wave started the ship moving in a certain direction, and according to Newton's first law the ship must go on moving in that direction until something stops it.

When we look into the matter we find that the weight of the water the ship has displaced acts on the ship and tends to right it; but for this to happen—and no vessel could live in anything but the smoothest sea if it did not happen—the centre of gravity of the ship must be low down. We see to this by having the ship's hold filled with ballast, something dense and heavy, which lowers the centre of gravity of the whole ship.

If for any reason the ballast were taken and thrown out of the ship, the result would be the same as that of standing up in a rowing-boat. It means that the centre of gravity of the ship is raised, and this means that the equilibrium is less stable, and that it is much more liable to be overturned than it was before.

Long experience has enabled men who build ships to understand and master these principles in practice, so that such a vessel as the modern lifeboat is scarcely capable of being improved. In recent years, however, men have been making various new things which depend on the laws of equilibrium.

THE SUBMARINE AND THE AEROPLANE AND THE LAWS OF EQUILIBRIUM

Submarines are an instance of this, and most of the difficulties have been mastered in this case; but it is the making of vessels to fly in the air that furnishes us with the greatest difficulties.

It is a great mistake to suppose that anyone has yet accomplished the feat of making a flying machine whose equilibrium can be relied on whatever the wind is doing.

This will be quite plain if we go back to our principles. They are very simple, but they apply everywhere. We know that all

motion depends on forces; we know that all rest and all states of balance depend on the relations between forces; and we know that there is a constant force of gravitation always acting, and always acting equally.

So long as we have only gravitation to reckon with our problem is simple. Anyone can make a boat that will float on still water, or a balloon that will stay the right way up in still air, or even a toy flying bird that will do the same. The difficulty arises when we have to reckon with other forces which vary in their direction and strength. That is the problem for the machine which is to fly in the air no matter what the air is doing. The problem is made specially difficult by the fact that, if the machine is to carry passengers it must retain its right position always; it cannot be allowed to turn turtle, and then right itself.

A similar problem, but not quite the same, has been solved perfectly by birds and by many insects. The bird is subject to all the laws we have discussed; gravitation is constantly acting on it; the pressure of the air downwards and of the air in motion, which we call wind, acts on it also.

THE PROBLEM OF HOVERING FLIGHT WHICH MAN IS TRYING TO SOLVE

The bird has solved the problem of making power in itself that will keep it up even though the specific gravity of its body is greater than that of the air. That problem has been completely solved by man in modern flying machines. This is not to say that man has made or ever will make engines which have as much power in proportion to their weight as a bird's muscles have, but the difference is only one of degree. There yet remains the thing which the bird can do and we cannot do—hovering steadily in almost any state of the air. Long and careful study has been made by many observers of the way in which the bird balances itself. Photography has been called in for this purpose, and something has been learned from the kinema, but so far as we can learn at present it seems that the success of the bird is a success which only a living machine can achieve.

We must not leave the subject of gravitation without referring to what is, perhaps, the most important of all the questions it raises—much more important than the question of aeroplanes or boats. If it be true that here is a force which acts for ever, tending to pull every particle of matter in the universe towards every other particle, why does not all the matter in the universe become one great solid ball?

Now, there are two possible answers to this question, and both must be carefully considered and explained.

THE OLD IDEA THAT EVERYTHING MUST HAVE A BEGINNING AND AN ENDING

The first answer we now know to be not the true one, but we ought to know that it was once believed in. It might be that this process of gathering together all the matter in the universe under the influence of gravitation was indeed going on, and had been going on since the universe was first made, but that there had not yet been time enough for it to result in gathering everything together into a solid ball. This has in it the ideas of beginning and ending, which people have always been inclined to believe, and which, at first, most of us will think must be true.

Not very many years ago these ideas of beginning and ending were supposed to be strongly supported not only by the existence of the law of universal gravitation, but also by the behaviour of heat and power in the universe. Men thought the universe was like a machine which had been wound up and set running, but which in course of time must run down. One great thinker stood out against these notions, and said they could not be true, and that was a famous English philosopher, Herbert Spencer.

THE TRUTH A FAMOUS ENGLISH THINKER THOUGHT ABOUT THE UNIVERSE

Herbert Spencer declared that, though we could not name or discover them yet, there must be other forces in the Universe which act in the opposite direction to such forces as gravitation, and that the history of things in general must be a rhythm, like a wave going on and on for ever. Herbert Spencer was right. Science does now admit the existence of other forces which, so far from making all bodies converge to one another, helps to disperse them. The presence of light, for example, which in its larger meaning is called radiation pressure, is one of them; the dispersal of atoms and electrons in the furnaces of the stars is allied to it. Thus we may think of the great forces of the Universe as balanced, and the Universe itself, like its Creator, continuing from Everlasting to Everlasting.

The Story of Immortal Folk Whose Work Will Never Die

Buddha

Zoroaster

An Oriental Sage

Confucius

WISE MEN OF THE EAST

MAN in all ages has been puzzled to know why he exists, and how this Earth came into being. As soon as he began to think he found himself surrounded by mystery. He looked around him and saw the beauty of the fields, the majesty of the hills, the wonder of great waters; he looked upward and fixed his gaze on the stars; he turned his gaze inward and saw himself, his own thought, his reflection of *I am I*. What did it all mean? Whence? For what purpose? Whither?

Among those who wondered there were some who meditated and reflected. Their meditations led them to believe certain things. They spoke of these beliefs. If their beliefs satisfied the ideas of men, they became teachers. They spent their lives in teaching, and at their death others continued to deliver the message.

Who these earliest teachers were and what they taught we shall never know. It is quite late in the history of humanity that we come on religious teachers we can name, whose teachings are more or less clear to us. But these men, remember, had inherited a teaching which goes back to the remote ages of the human race.

Two of the teachers we meet in the past were natives of India—Gautama, the founder of Buddhism, and Vardhamana, the founder of what is called Jainism. In India the search after truth deeply occupied men's minds. Life was easy there; people had much time to sit down and think. India may be called the cradle of religion—certainly the cradle of dreamy guesses at truth.

Some five hundred years before the birth of Jesus, these two men were born in India. The religion of that time was Brahminism, a loose set of ideas that did not satisfy either Gautama or Vardhamana.

Gautama was the son of an influential man, some say a rajah, or king. He was brought up in a palace, and the world was kept hidden from him till he was married. While he lived in the palace Brahminism satisfied him, but his first excursion into the world shattered his beliefs.

He saw a broken-down old man, then a sick person, and at last a corpse. These things seemed terrible to his soul. He felt that life was a horror. He sought to escape from it. Leaving his wife, his newborn babe, his father, his friends, his wealth, and his palace, Gautama went out into the wilderness, alone and penniless and homeless, to think about life.

He came to the conclusion that all solid and material things are useless and unworthy of men's affections, because they

have the germ of death in them and will pass away, so that nothing is worth while. He came to the conclusion that man is born on this Earth not once but many times, and, because each time his spirit is filled with foolish and vain desires, the great object of life should be to destroy all desire. When once a man wishes for nothing, absolutely nothing, when his spirit is filled with nothing but a complete willingness to perish, then at death he passes out of the world for ever, enters something called Nirvana, which no European can understand, and is blessed for ever by being for ever non-existent. He ceases to be. Gautama preached this doctrine and called himself the Buddha, a name which means the Enlightened One.

It is the most curious religion in the world. At one moment you feel how beautiful it is; at the next you are inclined to laugh at its foolishness.

Here is a typical story of Buddha. A poor woman came to him one day with a dead child in her arms. She was wild with grief, and implored the Buddha to give her medicine which would heal her child. Whatever herbs he needed for this medicine she would fetch him, even if she had to go to the ends of the Earth. He told her to fetch a little mustard seed, adding that it must be brought from some house in which no son, or husband, or parent, or slave had died. The woman went away eagerly to fetch the simple mustard seed.

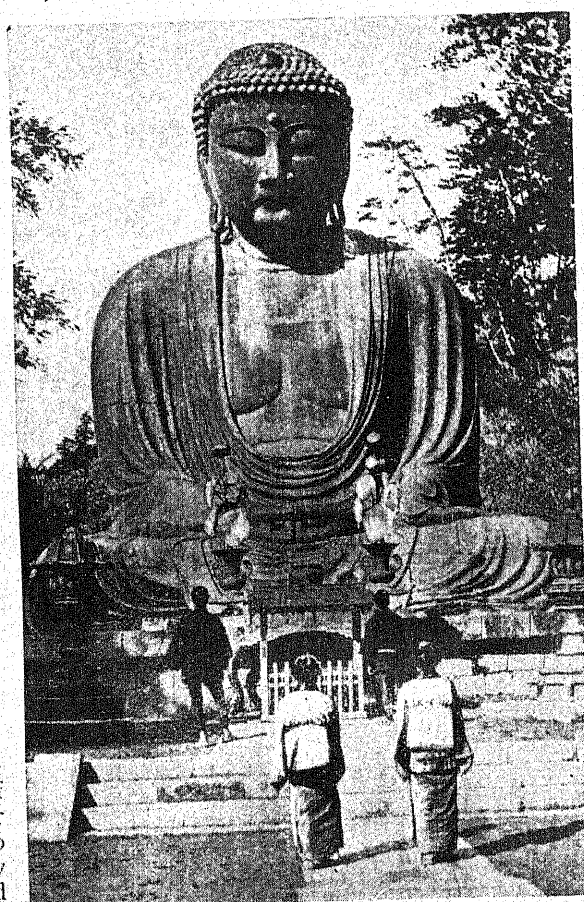
"Here is mustard seed," everyone said to her; but when she asked if any had died in that house, the answer was:

"Lady, the living are few, but the dead are many."

For a long time she journeyed, and then, seeing the truth of things, that death is common to the race, she left her dead baby, and returned.

"Have you the seed?" asked Buddha.

"My lord," she answered, "the people tell me that the living are few, but that the dead are many."



THE GREAT STATUE OF BUDDHA AT KAMAKURA IN JAPAN

Then the Buddha taught her the great sadness of life, and filled her with the desire no longer to exist. The whole teaching of Buddhism in regard to human life is the opposite of Christianity.

Buddhism, filled with the melancholy of despair, says: "Nothing is worth while." Christianity, filled with the vigour of hope, shouts: "Everything is worth while." The Buddhist is careless of life and indifferent to suffering. The Christian nurses the sick beggar, and builds sanctuaries for lost dogs. Buddha did not tell people to be good, did not bid them repent, issued no rules of conduct. His whole mission was summed up in this—disgust for existence, here or anywhere. If a man felt remorse for his sins, it showed that he wanted to do better. He must want nothing at all.

Buddhism spread among the peoples of India, and at the death of Buddha it spread still more. Its progress was checked, however, among the northern

LAOTSZE GOES OUT INTO THE WILDERNESS

THE GUARD OF THE PALACE GATES ASKS LAOTSZE TO WRITE HIM A BOOK BEFORE HE GOES INTO THE WILDERNESS

peoples, who believe in opposing themselves to Nature, and refuse to resign themselves to fate. It is a purely Eastern religion, lacking altogether a universal note—it could never convert the world.

Hinduism, which claims three-fourths of the population of India as its adherents, is a religion made up of original Brahminism, Buddhism, and other elements. A prominent feature of Hinduism is its insistence on the observance of caste.

Vardhamana did not like Buddha's teaching, and taught a very different religion. Vardhamana, as we think, was a truer teacher than Buddha, but unfortunately he had not the same genius, the same attractiveness.

In the midst of much unintelligible stuff about Nirvana, there is a kernel of solid virtue in Vardhamana's teaching. He taught that everything has a soul, the soul being the life—so that grass, trees, animals, even water, have souls.

It is the fate of this soul to journey from body to body for millions of years, and the only escape from the toil of existence lies in practising the four virtues of liberality, gentleness, piety, and repentance. One must be good in word, thought, and deed; kindness to animals is essential.

THE TEACHER OF HOPE WHO FOLLOWED THE TEACHER OF DESPAIR

So we see that Jainism is better than Buddhism, because it makes for action instead of for despair; but the goal appears to be the same—an escape from life. Jesus, on the other hand, created in men a passionate desire for life; life and ever more life; life which fulfils itself in adoration of God, who wishes all His children to be happy.

Nothing is known of Vardhamana, but the Jains still exist, and are very rich.

About a century before the existence of these two teachers in India there lived two teachers in China. One was Laotsze, who founded what is called Taoism; the other was Confucius, the founder of Chinese philosophy.

Laotsze was born in a hamlet, and became librarian to the king. In the royal library he pondered over the mysteries of life, and after many years he came to the conclusion that the supreme virtue was humility. Desiring to hide himself, he left the palace and set out for the wilderness. As he was passing out the warden, who knew him as a holy man, said:

"You are about to withdraw yourself from the world. I pray you write me a book before you go."

Laotsze thereupon delayed his journey while he wrote a book about half the size of St. Mark's Gospel. He gave this to the warden, passed through the gate, and no man knows where he died.

THE CHINESE WHO WROTE A GOSPEL AND TAUGHT MEN NOT TO BE ANXIOUS

The little book is the gospel of Taoism. From these few pages grew up a religion. If Laotsze could stand in that gate now he would be amazed to see the effect of his farewell to the warden. Let us see how much we can understand of Taoism.

The word Tao is the despair of translators. It means "the way," but it means "the wayfarer" as well. It is man and his destiny; God and humanity. We cannot say exactly what a Chinese understands by it. Laotsze advised that we should think and act without reflection. We should become like young children. The grass grows without taking thought; man should live with a similar freedom from anxiety. Everything should be spontaneous, everything done on the impulse. But he carries this advice almost to the point of anarchy.

It is the way of Tao (he says) not to act from any personal motive, to conduct affairs without feeling the trouble of them, to eat without being aware of the flavour, to account the great as small and the small as great, to recompense injury with kindness.

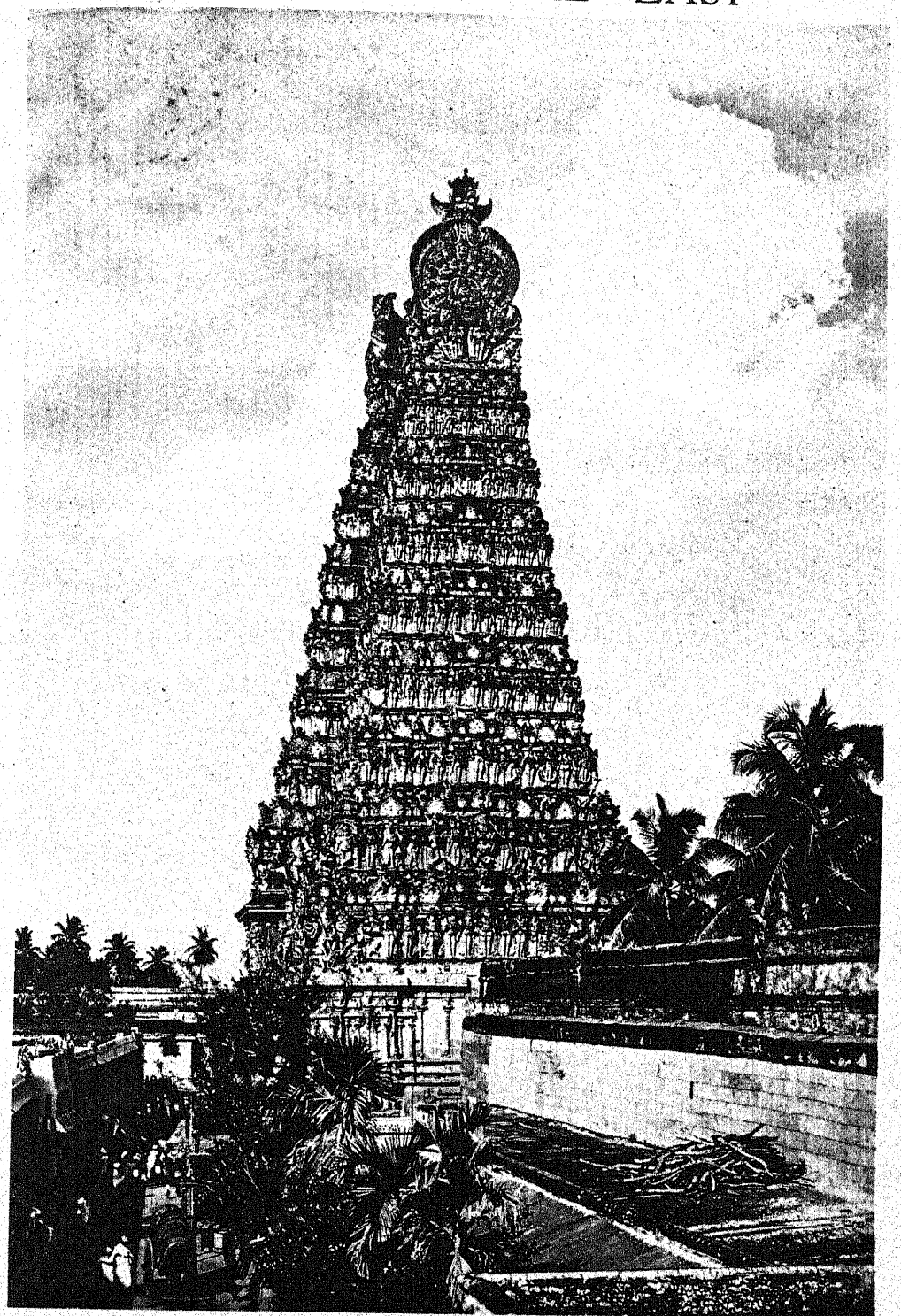
He hated war: he did not like to see men put to death. He felt no interest in art, culture, and refinement. Life should be without effort. There could be no beauty where there was strain. The pilgrim of existence should never be in haste about anything, never be anxious.

THE BOY WHO PLAYED AT PREACHING AND BECAME THE SAGE OF CHINA

This old philosopher wanted people to be happy, but we cannot help feeling that here also is that despairing fatalism, the belief that everything is pre-arranged to happen, whatever man may do, which is the ruling idea of the East.

A very different man is Confucius, the great sage of China. Confucius and Laotsze once had a conversation together. Laotsze did not think much of Confucius, but Confucius was struck by Laotsze. Now, which should we say was the greater man? It was Confucius. It requires

TEMPLES OF THE EAST



THE WONDERFUL HINDU TEMPLE AT MADURA IN INDIA, DECORATED WITH HUNDREDS OF CARVED FIGURES

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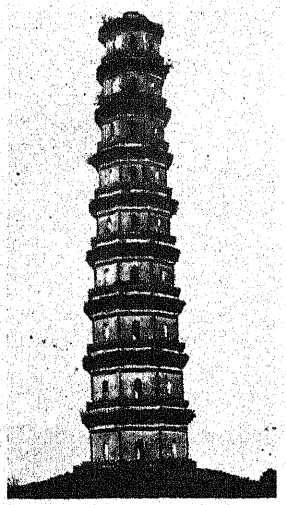
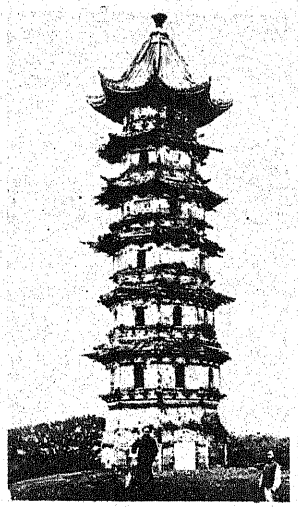
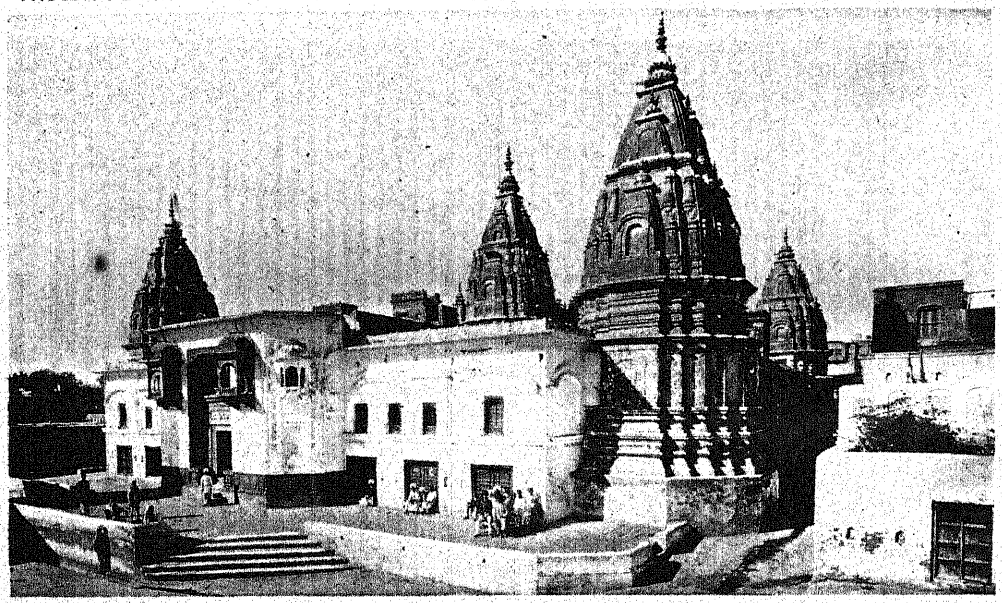


THE ANCIENT HONAM PAGODA NEAR CANTON

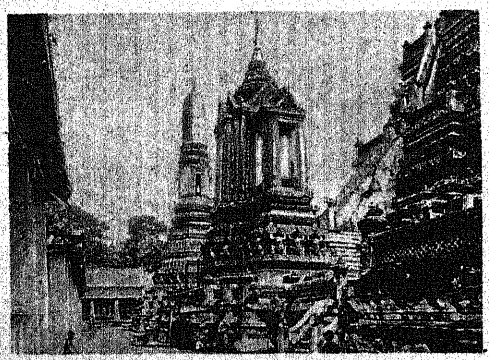
A MODERN TEMPLE AT KADO IN BURMA



SOO CHOW PAGODA, BUILT 1600 YEARS AGO

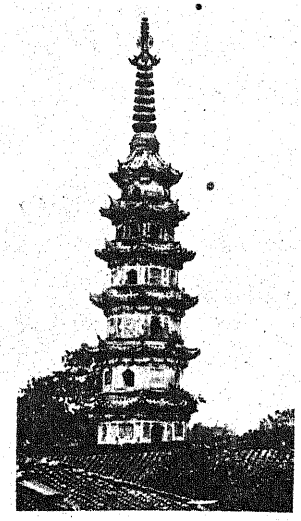


THE SPLENDID TEMPLES AT KAPURTHALA IN INDIA



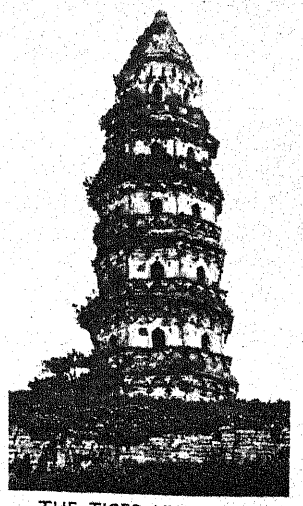
THE TEMPLE OF WAT CHENG, SIAM

MINOBU TEMPLE, JAPAN

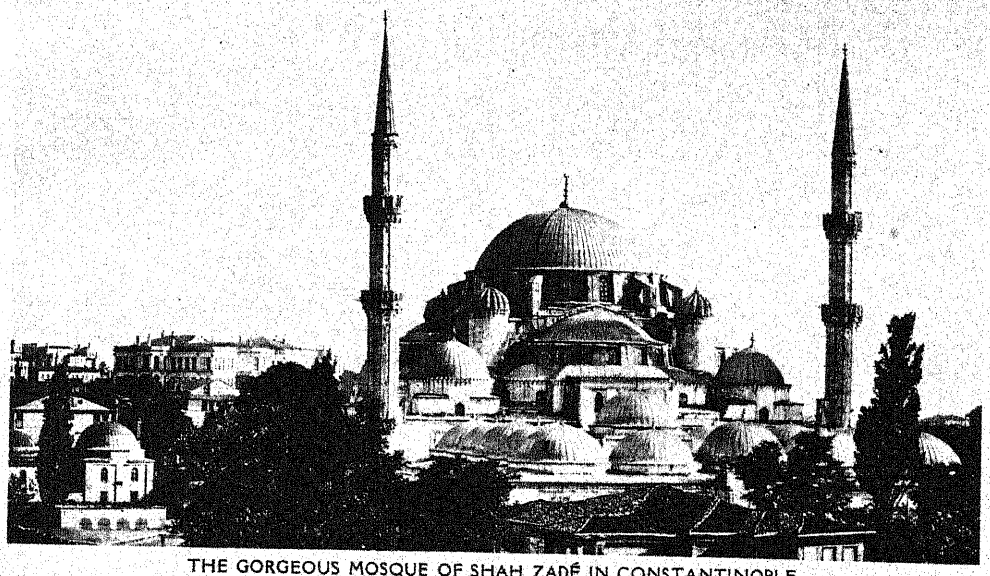


A PAGODA AT SOO CHOW IN CHINA

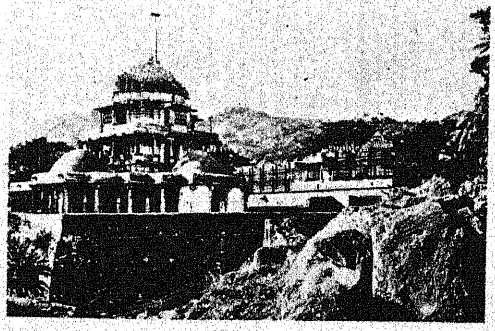
THE TEMPLE OF HEAVEN AT PEKING



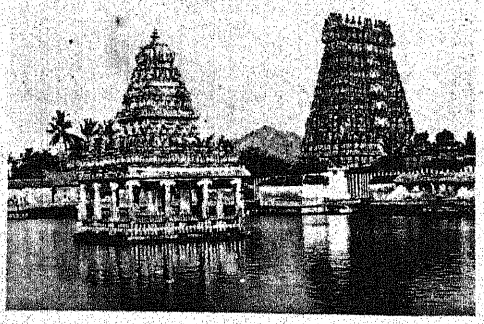
THE TIGER HILL PAGODA IN CHINA



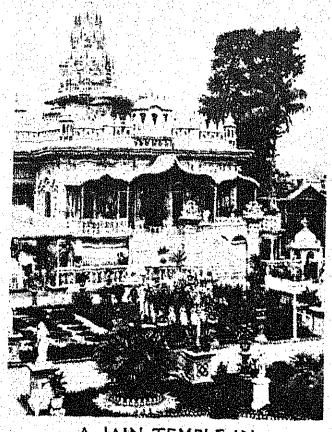
THE GORGEOUS MOSQUE OF SHAH ZADÉ IN CONSTANTINOPLE



A JAIN TEMPLE ON MOUNT ABU IN INDIA

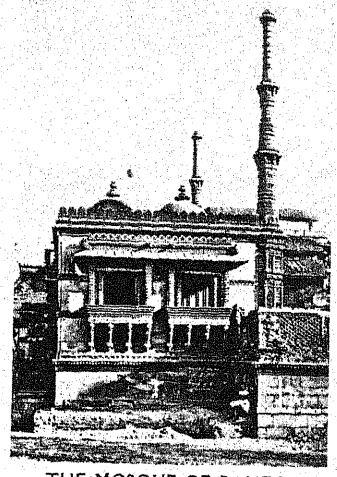


THE TEMPLE OF NAGARCOIL, NEAR CAPE COMORIN IN INDIA

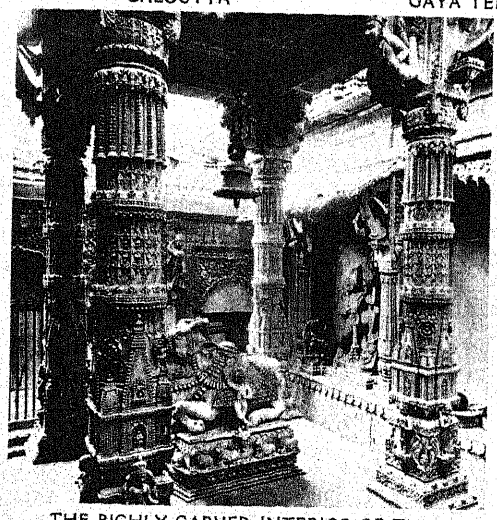


A JAIN TEMPLE IN CALCUTTA

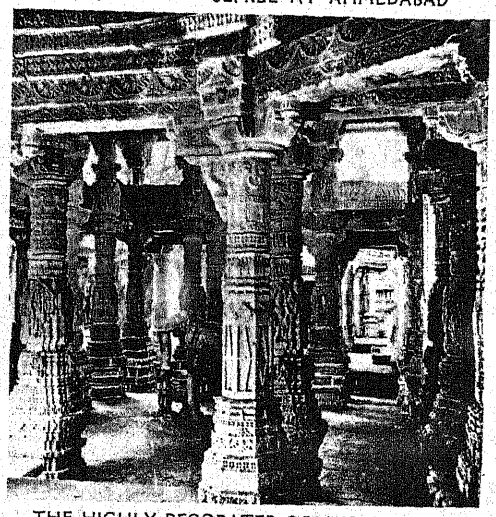
A FIGURE OF BUDDHA IN BUDDH-GAYA TEMPLE, INDIA



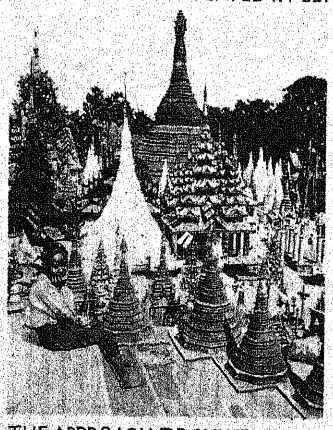
THE MOSQUE OF RANEE SEPREE AT AHMEDABAD



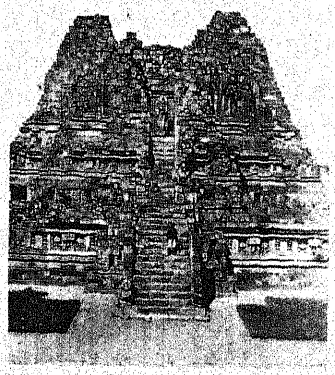
THE RICHLY-CARVED INTERIOR OF THE GOSAIN TEMPLE IN BENARES



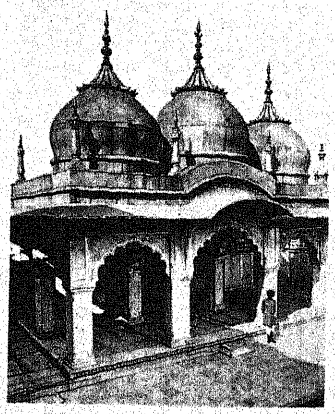
THE HIGHLY-DECORATED COLUMNS OF A JAIN TEMPLE IN UDAIPUR, INDIA



THE APPROACH TO SHWE DAGON PAGODA AT RANGOON



THE RUINS OF A SHIWA TEMPLE IN JAVA



THE PEARL MOSQUE AT AGRA IN INDIA

The pictures on these pages are by Messrs. Bourne & Shepherd, E.N.A., Herbert G. Ponting, Lowell Thomas, and others

genius of the highest order to appreciate those with whom we do not agree.

Confucius was born of an ancient and honourable family; but he was poor. In order to earn his living he studied hard in childhood. He was fond of music, and played on the lute, singing to it.

His favourite game with other children was what we should call "playing at being a clergyman." He liked to dress himself up, to strike attitudes, and to conduct religious sacrifices. He was married at 19, and became a keeper of stores, and afterwards the controller of parks and herds.

THE IDOL OF THE CHINESE PEOPLE WHO BECAME AN EXILE

He was 22 when he set up as a teacher, and it is said of him that he never refused a scholar who was too poor to pay his fees. But he used to say that when he had explained one corner of any subject he gave up teaching that lesson if the pupil could not understand the other three corners for himself.

His fame spread as a teacher, and he became a minister to one of the rulers. So great was his success that he became "the idol of the people, and flew in songs through their mouths." He put down injustice, and banished crime. He was just, honest, and fearless. But the ruler began to grow jealous of his power, and Confucius had to go.

The rest of his life is a pathetic tale of homeless wanderings. Accompanied by his disciples, he journeyed from State to State, seeking some ruler wise enough to accept him as teacher and minister. He told his disciples that the greatest reform was to make people understand the meanings of such names as ruler, father, son. If those words were properly understood, unhappiness and misery would vanish from the Earth.

HOW THE TEACHER OF CHINA SOUGHT A KINGDOM BUT FOUND NONE

On these wanderings he frequently encountered hermits—men who had retired from the world in disgust. These hermits could not understand how Confucius could be so stupid as to live in a wicked world trying to alter what was unalterable. Confucius said it was impossible to withdraw from men and live with beasts and birds who did not understand man. "With whom should I associate," he asked, finely, "but with suffering man?" So he walked on and on, teaching his disciples, comforting the poor, and seeking for a kingdom to rule.

He found no kingdom, but his teachings have lived from the day of those sad wanderings down to our own time, and Confucius now reigns in the hearts of millions of the human race.

One of his sayings shows the great difference between him and Laotsze. "The cautious seldom err." But his whole gospel was more generous than that; he taught the golden rule that we should live exactly as we would have others live "What you do not like when done to yourself, do not to others." His whole teaching shows that we should do good to others, whether there is need for us to do so or not. But he said nothing chivalrous or noble about women, and he gave no attention to a life after death. "While you do not know life," he said, "what can you know about death?" All his ideas of goodness concerned man's life on Earth, and it is wonderful that a teacher who left wholly out of account life after death should have had, and still has, such immense influence over men.

THE PROPHET OF PERSIA WHO LAUGHED THE DAY HE WAS BORN

Further back in time than any of these men is the founder of Zoroastrianism, the ancient religion of Persia. Some say he lived before the battle of Troy, others that he was Ezekiel, others that he was Ham, Moses, or Abraham. The legends about him are countless. It is said that he began to laugh the day he was born; that the palpitation of his brain was so vigorous that it repelled any hand that might be placed on his head; that he dwelled twenty years in the wilderness and lived on a single cheese which never grew stale. It is also said that as he came down from meditating in a mountain, fire burst out from heaven which did not consume him; that he desired to be killed by a thunderbolt, and that in this manner he did die, after having taught the Persians all there is to know about this world and the next.

We need not trouble our heads about this nonsense, which always grows up about the original men of antiquity. We may be certain that a man named Zoroaster did live, that he taught the Wise Men of Persia, and that his character was sufficiently unusual to make him revered and obeyed by his disciples.

Zoroaster divided everything into good and evil. There was a good god and an evil god. Some of the animals, birds, fishes, and plants are made by the good god, and some by the evil. He taught that sacrifices should be made to the good god in order to win from him all manner of good things; and to the evil god also, that he might guard the offerers from dangerous and unpleasant things.

THE GOD OF THE LIGHT AND THE GOD OF THE DARKNESS

Light belongs to the good god, and darkness to the bad. The name of the good god is Ormuzd, and the evil Ahriman. Life after death will be either good or evil, and the whole of our eternal life is determined by our existence here. The soul after death passes over the Accountant's Bridge; its deeds are examined in the book where everything is written. If there are more good than evil deeds it goes straight to bliss; if the other it goes straight to pain; and if the balance is equal it waits in a land of shadow for the final decision of the Great Judge.

We see that there is some sense and some beauty mixed up in this queer religion, which is interesting as showing us what men have accomplished in striving to solve the riddle of existence.

And now, last of all, we come to the famous religious founder Mohammed, who is the Prophet to many millions of the human race.

First let us ask what did Mohammed bring to the world, and wherein lie his moral services to humanity. He brought to a poor and unpromising populace the belief in one God, the Creator of the Universe, and this gift was meant for the whole of mankind.

MOHAMMED THE FOUNDER OF A GREAT RELIGION

Justly indeed, therefore, might Mohammed claim to be the benefactor of his country. It was he who united into one nation the scattered tribes locked in perpetual strife, and bound them together by the ties of faith in one God and the immortality of the soul. It was he who purified Arabia of idolatry. It was he who substituted an inviolable and inviolate system of law in the place of blood revenge, law of might and wild revenge. It was he who softened the hard lot of the slave and showed a paternal care for the poor, the orphan, and the widow. It was he who assigned a share to them in the poor-tax and in the booty. He opened the eyes of the people of his race to the fact that man is a rational being, endowed with the gift of understanding, a responsible being, fully accountable to the Almighty for his deeds and misdeeds. Henceforward men who accepted this teaching became moral beings with a conscience, that inward judge whose vigilance none can evade and from whose judgment there is no escape. Nor can we forget that he insisted on the sublime idea of brotherhood through the faith he taught. All Moslems are brothers. There is no wall of division, no difference founded on the score of nationality, and no distinction begotten of colour. This broad and liberal doctrine found its counterpart in the splendid democracy which the faith of Islam set up.

THE FINE EXAMPLE MOHAMMED SET TO HIS PEOPLE

Thus did Mohammed set a shining example to his people. His house, his dress, his food, were characterised by a rare simplicity; so unpretentious was he that he would receive from companions no special mark of reverence, nor would he accept any service from his slaves which he could do himself. Often and often was he seen in the market purchasing provisions. Often and often was he seen mending his clothes in his room or milking a goat in his courtyard. He was accessible to all and at all times. Unlimited was his benevolence and generosity, and so was his anxious care for the welfare of the community. Despite innumerable presents which from all quarters unceasingly poured in on him, despite rich booty which streamed in, he left very little behind, and even that he regarded as State property. After his death his property passed to the State.

The Islamic faith is embodied in the Koran, which was written in the lifetime of the Prophet at his dictation. The Koran teaches that prayer is the true means of that purification of the heart which is the only way to communion with God; enjoins fasting for moral and spiritual reasons; and makes charity needful for salvation. A pilgrimage to Mecca is incumbent on every Moslem once in his life, assuming that he has the means to undertake it and to provide for those dependent upon him.

THE STRANGERS AT THE DOOR

This is the story little birds used to whisper to each other in the groves of Greece.

SOME time after the Deluge, when the Earth had dried and the plants could grow again, when there were new flocks in the fields and new men building houses, Jove and Mercury flew down to Earth. The king of the gods came as a mortal and dressed as a beggar, and Mercury, laying his wings aside, followed him.

On a warm summer evening they reached a small village. The people there were peacefully enjoying the fresh air of the twilight on their thresholds, and none welcomed the travellers, none thought of offering them a seat. Soon all the doors were closed, for night had come.

But through the darkness the eyes of Jove caught a little light shining far away; it was a small hut covered with thatch and reeds. "A miserable cottage!" murmured Mercury. "Kind folk may dwell there," replied Jove, peeping through a chink in the door.

Inside a white-haired man was weaving wicker cords, a woman, bent with age, was spinning, and both were singing hymns to the immortal gods. Jove knocked and raised his voice. "Have pity on two exhausted travellers," he said.

The door was thrown wide open, and as the beggars passed in the old man held out his hands, saying: "Be welcome in our hut. Here is Baucis, my beloved wife, and I am Philemon. We are very poor and happy, although we wish we were rich enough today to offer better fare to strangers sent to us by the gods."

While the husband talked Baucis, in spite of her great age, made haste to spread a lambskin for her guests; she blew the fire into a blaze, and prepared a bath for the weary travellers.

Then Philemon led the beggars to the table, on which, for want of fine linen, his wife had scattered twigs of fragrant lavender. She brought an earthen vessel filled with ripe olives, wooden cups with milk and cheese, honey and a wholemeal loaf, nuts and figs; all she had Baucis brought. But nothing equalled the kindly grace and goodwill of the old folk.

As they sat to eat a remarkable thing was seen. The pitcher, several times emptied, filled itself again, and the cups were never empty.

At such an amazing spectacle Baucis and the timid Philemon, altogether astonished and confused, raised their arms to Heaven and implored pardon for their scanty meal. Only a friendly goose, the keeper of the hut, remained, and this Philemon was about to kill as an offering to his guests when it was seen that the

goose was apparently seeking shelter from the two strange men.

"Let it live, for the gods protect those who crave their help!" said Jove, stretching out his hand; and then, rising to leave, he took upon himself the form of a god, and declared to the bewildered old couple: "Woe to those who open to others neither their dwellings nor their hearts. As to you, my old friends, follow us to the mountain."

The two obeyed, and, leaning on their staffs, painfully clambered up the hill.

As they reached the top Jove cried out to them: "Look behind!" and, looking, they saw that the familiar plain had become a marsh. Their humble home alone had been preserved.

As the old couple wondered at this transformation, and regretted the fate of their neighbours, their shabby hut, such a small dwelling for two as it had been, was changed into a temple. The trees became stately columns, the thatch was turned to gold, the doors were adorned with carvings, and the floor was of marble.

Now said Jove: "Tell me, Philemon, what you wish for most." And the old man answered: "I wish my heart and hands were pure enough to be the keeper of this temple!" The god bent his head. Then he smiled and added: "And you, wise woman, what is your desire? It will be granted."

"Let death take us together," said the gentle Baucis.

So it was granted by the gods. The old couple took care of the sanctuary, sweeping out the nooks and corners, burning sweet incense at the altar, praising the gods, and sheltering pilgrims.

And then there came an evening when, as they sat on the steps of the temple telling their story to the pilgrims for the thousandth time, suddenly both were clothed in verdant foliage. Baucis had become a gracious lime, and Philemon a strong oak bending over her.

This is the story the little birds whispered to one another, but the poet adds: "A pious man is cherished by the immortal gods, and who honours them is honoured too."

THE RACE FROM MARATHON

GASPING out "Rejoice, we conquer!" as joyfully as his tongue can utter them, a poor, worn-out youth drops lifeless into the arms of those Athenians who have hurried out of their city to learn his tidings.

His faint whisper goes from mouth to mouth, and is passed on throughout an anxious city, quickening the pulses of the citizens until they lose themselves in an outburst of thanksgiving and rejoicing.

The story of this victory is one of the most thrilling the world has ever known. It takes us back to one of the first decisive battles in the world's history.

Darius the Mede has made himself master of Asia, and, angry at some interference on the part of some Greek State, he assembles his picked soldiers, summons the tribes who own his sway, and sails over the Aegean Sea to conquer and enthral the little Greek States, of whose skill in peace and war reports have reached him.

Athens is the first city in the path of his unconquered hosts, and the Athenians feel the need of aid from the famous Spartans, whose State lies 120 miles to the south across the Isthmus of Corinth. The army of the Medes and Persians is fast approaching, and their city will soon be invested. How is it possible for the Spartans to arrive in time?

The rulers of Athens, seated in grave council on the Acropolis, send for Pheidippides, their champion runner, who has won for his State the myrtle crown at the famous Olympic Games. They command him to run and urge Sparta to come to their aid. For two days and two nights Pheidippides runs, swimming the rivers and climbing the mountains in his path.

But the Spartans are envious and mistrustful of Athens, and they are a very superstitious people; and so Pheidippides is sent back with the news that their army will come, but cannot start until the full Moon.

Pheidippides races back to Athens again. The Athenians are now thrown on their own resources. The Persians have landed, and the Athenians are resolved to oppose them at once.

The weary but dauntless Pheidippides takes his long spear and his heavy shield, and marches with the ten thousand picked men to meet the foe at Marathon.

Marathon is fought and won, and the victorious Greeks call to Pheidippides to take the news to the capital. He flings down his shield, and runs like a fire the twenty-two miles to Athens. Then he falls and dies, gasping as he falls the two Greek words which mean "Rejoice, we conquer!"

TALES TOLD TO BURMESE CHILDREN

BUDDHA AND THE SQUIRREL

BUDDHA, who had set out to search for truth, was so long in finding it that he became discouraged, and made up his mind to return home. But as he started he saw a squirrel sitting on the bank of a lake, dipping its tail into the water and shaking it over the land.

"Little squirrel," said he, "what are you doing?"

"I am emptying this big lake," replied the squirrel.

"But you will never be able to do that," said Buddha. "If you dipped your tail into the lake millions of times there would still be nearly as much water as before."

"Well," said the squirrel, "anyhow I shall persevere."

Buddha learned the lesson, and resolved to continue his search for truth.

THE CLOUD THAT TALKED

TWO men set out to make their fortunes, leaving their wives at home. When they got to a distant land one decided to kill the other and take his money. So he wounded his companion so severely that the poor man lay dying. As his breath was passing away the poor fellow said to the man who had killed him:

"We are alone, and you think no one knows what you have done, but that cloud in the sky has seen, and will tell my wife of your evil deed."

Then he passed away, and the other man laughed at the idea of a cloud telling tales. He stole the money of his friend and went home, saying he had parted from his companion soon after starting on the journey and knew nothing of him.

A few days later, while sitting outside his house, he looked up and saw the clouds passing by. This reminded him of what the dying man had said, and he laughed.

"What a fool that fellow must have been to think that a cloud could talk!" he muttered.

His wife heard him laugh and mutter, and asked what amused him. The man said "Nothing," but his wife kept on worrying until at last he told her, first making her promise to tell no one. The wife kept the secret for a week or two, and then she told a friend, and this friend told another, until at last the dead man's wife heard of it.

The murderer was arrested, confessed his crime, and was punished. So, after all, the cloud had made the secret known.

THE BIRDS AND THE MICE

AGAINST the command of their king the birds one day flew down from the highlands, where they lived in happiness and safety, to the lowlands, where there were plenty of fields and rice was to be had in abundance.

But the men in the fields spread great nets, and all the birds were caught. In vain they fluttered and hopped up and down—the nets held them tightly; and had it not been for the wisdom of their king, who flew down to their rescue, they would all have been lost.

"You have disobeyed my orders," said the king, "but if you now do what I tell you you may escape."

"We will do anything you like to command, O king," said the birds, "if only you will save us from this prison."

"Well," replied the king, "what you must do is to fly up all together when I give the word."

The birds said they would do this, and when the king gave the word "Fly!" every bird flew up, and their united strength lifted the net, and they carried it away to their homes. But even now they were not free, for they could not get rid of the net.

Once more the king came to their rescue. A little mouse was summoned, and asked to gnaw through the net. The mouse loved the king bird, and brought all his brothers and sisters and uncles and aunts, so that the mice had soon bitten through the net and set the birds free.

THE WOLF WHO MET A MAN

A FOX and a wolf were talking one day when the fox told the wolf that the strongest of all the creatures on Earth was man. The wolf did not believe this, and said that the next time he met a man he should attack him, and show that a wolf could beat a man.

A day or two after the fox and the wolf were out together when they met a man, and at once the wolf sprang at him. But the man had a gun, and, raising it to his shoulder, fired at the wolf, who at once ran away.

When the fox met his friend later he laughed, and asked if he did not now think a man was stronger than a wolf.

"No," said the wolf. "If he had fought fairly I should have beaten him, but he put a stick to his mouth and blew thunder and lightning at me."

HOW RUSTEM MET HIS SON

ONCE upon a time there lived in Persia a great hero called Rustem, whose deeds were so wonderful and whose bravery was so boundless that he came to be known as the Shield of Persia. He was known to send armies flying in terror merely at the sound of his great war-cry of " Rustem ! " which, like the bellow of a bull, used to fill the plain ; and the people of the surrounding countries dreaded the coming of Rustem and Rakush, his horse, more than the invasion of an armed host.

Rustem's great friend all his life long was his yellow horse Rakush. Between these two a great love had arisen from the day when the hero had chosen him as a colt from his father's stables, and had tamed and ridden him. He was fiery in colour and fiery in nature. He fought and killed lions with his terrible teeth and whirling hoofs ; he slew dragons and deadly beasts. Times without number the brave animal saved the life of his master.

It happened that one day in his wanderings Rustem found himself in a foreign court where lived a beautiful and gracious woman called Tanimeh. A great love sprang up between these two, and with the consent of the father of the princess they were married.

But it was not given to the Shield of Persia to remain far from the noise of arms and the din of battle. After a few short summer weeks the summons came for Rustem to return to his own land, where another danger had arisen.

In great sorrow he parted from his loving bride, giving her, before he left, an onyx stone as a gift for the babe who he hoped would some day come to them. Rustem also bade his wife to keep their marriage secret, as he knew his country would take it ill if it were known that he had married a woman who was not of his own people.

So the Champion of Persia went back once more to the wars, and left his bride in the distant land.

Eventually, however, she became the mother of a boy, who was of such a happy disposition that he was known as the Smiling One. Now, Tanimeh knew that Rustem was longing greatly for a son to follow in his steps, and, like him, win glory and renown ; and she feared that if her husband knew of the boy's birth he would very soon send for him, and she would be bereaved of both husband and son.

So she sent word to Rustem that a daughter had been born to them.

In the meantime the babe Sohrab, which means the " child of many smiles," grew up into a beautiful, strong, and spirited boy, and it was not till he was a youth that Tanimeh told him the secret of his birth and his father's name.

On hearing that he was the only son of the great Rustem the boy's heart swelled with unbounded joy and pride, and he at once began to dream of following in his father's footsteps. In spite of the tears of anguish and entreaties of his mother he collected an army and rode off at the head of it to find the Champion of Persia and proclaim himself his son.

Now, while he had been hearing stories of his father he had learned a great deal of the reigning Shah of Persia, Kai Koos ; and the boy made a secret resolve to unseat that monarch and place Rustem, so much more fitted to rule, on the throne.

As Sohrab moved on in his march he heard new tales of his father's prowess, and no words could tell his longing to meet the great hero. But terrible difficulties lay in his way. Kai Koos set all kinds of traps to kill the impetuous youth, of whom he knew nothing save his name. But on came Sohrab through danger and delay, with his army around him.

Now, when Kai Koos saw that this wild boy was offering him war in deadly earnest he sent as usual for Rustem, little knowing what he did. Rustem had heard of this Sohrab who dared so much, but, like Kai Koos, knew nothing of him, so well had Sohrab kept his secret. The weeks passed until one day the armies of Kai Koos and Sohrab met in a wide plain, and the youth challenged the Persians to single combat.

Day after day he fought and conquered the men who came out to meet him ; and at last Kai Koos, afraid, said to Rustem :

" Wilt thou not go thyself and slay this boaster who defies all Persia and the safety of my throne ? "

" Nay," said Rustem. " Let it not be known that Persia was so ill-placed for men of war that Rustem had to go out to fight a beardless youth."

Then, after consideration, he said : " I will go, but let it not be known that I am Rustem."

Accordingly, the next day, Rustem, disguised, rode out to the middle of the plain, where his own son awaited him. When he saw him a great pang rent his heart, and he said to himself : " If my daughter had been a son, this surely had been he."

"Who art thou?" asked Sohrab eagerly. "Art thou Rustem?"

"Rustem!" scornfully replied the other. "Thinkest thou Rustem would stoop to fight with thee?"

"Ah," sadly replied the boy, "I had hoped to meet Rustem."

"Why dost thou so desire to meet Rustem?" inquired the other.

But Sohrab kept his secret.

"That I may slay him," he replied.

Then Rustem drew his sword.

"Come!" he cried; and the two joined in battle, watched by the armies on the plain. All day the fight lasted, for at last the great Rustem had met his equal. They parted at night for the fight to be renewed on the morrow; and Sohrab sought his aged counsellor, who knew his secret and had known his father.

"Sawest thou this champion with whom I fought today?" he asked eagerly. "Was he not like unto thy description of Rustem, my father?"

But the aged man's eyes were dim, and he replied: "I saw not anyone who was like unto Rustem."

The next day the battle continued, with the same result; and yet the third day father and son met in conflict on the plain.

"Surely thou art Rustem?" sorrowfully asked the boy.

"Rustem takes his ease in yonder camp!" in scorn replied the other. And the fight continued.

But this time the boy fought so well that Rustem's anger was aroused. He felt himself almost outdone—he, the Shield of Persia! He accordingly collected all his strength, and, with his great and terrible war cry of "Rustem!" rushed afresh at his opponent. But at the sound of the name Sohrab's arm dropped; and even as it dropped the sword of Rustem pierced his side, and he fell.

"Thou Rustem?" murmured the dying youth. "Then thou art my father."

"THOU RUSTEM?" MURMURED THE DYING YOUTH. "THEN THOU ART MY FATHER."

"Nay, I have no son," sadly replied the champion, as he bent over his fallen foe. "But if I had I would that he had been like thee."

Then Sohrab, dying, took from his arm the onyx stone which his mother had bound there; and Rustem remembered, and knew that he was in very truth his son. He gave a great cry and wrapped the boy in his arms, while the warriors in battle array looked on in great wonderment; and Rakush, standing near, wept for his master's woe.

And there, in his father's arms, Sohrab died; and Rustem wrapped his warrior's cloak over his own face and sat motionless by his only son through the dark night.

JEANNE PARELLE

This is a French translation of the story told in English on page 4970

Il était une fois en France un paysan qui avait huit enfants. Trouvant trop dur de travailler pour eux tous, il envoya sa fille Jeanne gagner sa vie au dehors.

Jeanne était mieux nourrie dans la maison de sa patronne et elle avait toujours du bon feu l'hiver. Mais elle aimait la hutte où jouaient ses frères et sœurs, et elle avait bien envie de retourner chez elle.

Un jour, avertie que sa mère avait été frappée de paralysie, Jeanne rentra à la maison pour la soigner. Depuis ce jour-là elle ne la quitta plus.

Nous pouvons imaginer combien son cœur aimant souffrit de voir la chère maman, qui avait tant travaillé pour ses enfants, étendue faible et sans espoir sur son lit.

Jeanne la réconforta, et se mit à faire la maîtresse de maison à sa place. Elle se levait de bonne heure, préparait le déjeuner du matin, et puis allait gagner quelques sous dans les champs. Elle n'était jamais trop fatiguée pour s'asseoir près de sa mère, et l'amuser avec des histoires.

Mais la situation allait s'aggraver. Le vieux père tomba malade, et dans ses terribles accès le pauvre homme mordait Jeanne pendant qu'elle le soignait, au point que ses mains furent douloureusement atteintes par des plaies. Cependant elle continua à faire l'ouvrage de la maison, à prendre soin de sa mère tout en cachant ses souffrances et la vue de ses plaies à ses parents.

Pendant dix ans elle soigna son père et sa mère, et quand son père mourut elle eut à gagner le pain de la famille.

Elle apprit à tisser la soie et continua à aller aux foins et à soutenir sa mère avec gaieté. Un jour la mère déclara qu'elle voudrait aller à l'église, et Jeanne le lui promit. Comment pensez-vous qu'elle s'arrangea pour conduire sa mère paralysée à l'eglise? Elle la soutint avec un bras et emporta sous l'autre un fauteuil. Quand la mère eut fait trois pas Jeanne mit le fauteuil à terre et y assit sa mère. Il leur fallut ainsi trois quarts d'heure pour atteindre l'église, qui n'était qu'à cinq minutes de leur maison.

Tout le monde disait à Jeanne que sa mère devrait aller dans un asile.

"Cela me fend le cœur de vous entendre," répondait Jeanne.

"Cependant, Jeanne, elle y serait bien soignée."

"Je sais qu'on en prendrait bien soin," disait Jeanne, "mais—la tendresse, qui lui en donnerait?"

C'était une maxime de Jeanne: "Dieu nous laisse nos parents pour en prendre soin."

Elle vivait du pain le meilleur marché, de quelques navets, et laissait à sa mère le pain, la viande, et le lait que le village leur allouait. Si quelqu'un lui donnait un vêtement chaud pour la préserver dans les champs contre un froid, Jeanne le transformait pour sa mère et le lui mettait.

"Bénis soient ceux qui contribuent à réchauffer ma mère!" disait Jeanne.

Son plus grand chagrin fut quand sa mère devint sourde. L'affliction de la mère atteignit sérieusement la fille; il semblait que la vieille mère devenait jeune et charmante pendant que la courageuse et travailleuse fille vieillissait et s'usait. La maison était toujours nettoyée à neuf, gaie, agréable, et jolie. On disait que Jeanne était devenue la mère et que la mère était devenue l'enfant, et à cela Jeanne riait et battait des mains.

Après vingt-cinq ans l'histoire de Jeanne vint aux oreilles d'un homme bon et riche qui avait mis de côté une grande somme d'argent pour récompenser le simple courage des pauvres. Elle gagna le prix pour son héroisme. Le monde entier connut son histoire, et son nom, Jeanne Parelle, devint une gloire à travers la France.

LITTLE WHITE ANEMONE

There was once a Spirit of the Flowers named Chloris, and the Spirit of the West Wind used to come into her garden and make love to her. Chloris had many nymphs in her garden, and among them was a little maiden called Anemone.

One day the Spirit of the West Wind turned away from Chloris and began to make love to Anemone. This made Chloris very angry, and she drove Anemone out into the woods and left her to perish.

Happily, the Spirit of the West Wind passed through the woods, and he found Anemone just as she was dying, and turned her into the little white flower which now grows in the woods in early spring.

BLUE JAY

On the north-west coast of America there used to dwell a powerful race of Indians called the Chinooks. As they hollowed out their cedar tree canoes, or feathered their arrows, they were fond of telling tales, particularly tales of Blue Jay.

Whether Blue Jay was a man, or a bird, or a will o' the wisp no one could say. He seemed to take it in turn to be all three. But, in any shape, it was mischief that delighted him.

One evening when Blue Jay returned from hunting he found that his sister Ioi had disappeared. Blue Jay was incapable of affection ; he had never done anything but tease Ioi all her life. But as they had lived alone together, and there was now no one to cook for him, Blue Jay soon missed Ioi very much.

The days passed, and there was still no sign of her. Blue Jay began to wish he had behaved better. He made inquiries ; No one knew anything about the missing girl. At length Blue Jay set out himself in search of her.

He wandered far and wide without ever getting news. Then, one day when he was fishing, his canoe suddenly began to move of its own accord. He was swept swiftly over the sea until he came to a foreign land.

He drew up his canoe, and walked inland till he came to a village. In the biggest lodge he found Ioi surrounded by several heaps of bones.

She greeted him kindly, and then, pointing to the heaps, she said :

" This is my husband, this is my mother-in-law, this is my little brother-in-law, who is kinder than ever you were, Blue Jay. At sunset they will turn into men and women, but at the sound of a loud voice they will become like this again till the next sunset."

She explained that the Shadow People had come when Blue Jay was out, and asked her to marry their chief. She was only too glad to leave her brother, even for a foreign land.

Very soon it became twilight, and Blue Jay found himself surrounded by a crowd of handsome, courteous people, who made him very welcome. But as soon as the merriment was at its height Blue Jay suddenly gave a loud shout. The fine folk disappeared, and there were only heaps of bones to be seen. Blue Jay rocked with laughter ; but he did not stay long in the land of the Shadow People.

Some time after he had returned to his own place a man died, leaving his wife and two children terribly poor. The Shadow People were sorry for them, and used to leave whale meat at the door of their little hut by the creek as if it had been washed up by the tide.

Blue Jay smelt delicious odours coming from the place ; he called the other men, and the worthless crew burst in upon the widow, and carried off the meat.

Next day the elder of the two children, a girl, had disappeared.

" The Shadow People have taken her, like Ioi," said Blue Jay. " How dare they steal a Chinook ? Let us go and fetch her back ! "

So they all set off in their canoes.

They reached a different part of Shadow Land. Not a person was to be seen except the stolen girl, who said she was happily married to one of the Shadow People, and invited them home.

Blue Jay had no sooner got into the house than he complained that he was hungry. Suddenly a queer creature appeared with a long beak. He used this to split wood, and soon a fire was kindled. It began to smoke. Now another queer creature with a huge stomach appeared, and swallowed it all.

A little piece of meat was cooked, but when it was set on the table another creature appeared and began to slice it. It became a canoe-load of meat.

After the guests had eaten the Shadow People challenged them to a diving match ; the loser was to be slain.

" I will be the Chinook champion," said Blue Jay.

So he fastened bushes to the side of his canoe, and when he felt he could breathe no more he would come up, hidden by the bushes, and get some fresh air. By this means he seemed to stay under for a remarkable time, and won the match.

Next they had a climbing contest, Blue Jay and a chipmunk were set to climb a piece of ice that reached from the Earth to the clouds. Blue Jay crawled round to the side on which no one was looking, changed himself into a bird, and flew to the top, where he took on his man's form again and was acclaimed victor.

By many other trials of strength and agility did the Shadow People try to get rid of their unwelcome guests, but they were always defeated by Blue Jay's dishonesty. At last the Chinooks returned,

for no one wanted them, and the girl was devoted to her Shadow kin.

Now Blue Jay took a wife, and in time had some children whom he treated as callously as Ioi. Once there was a fearful famine, and the people only had roots and mussels to eat. All the men went out in their canoes to seek food. The chief was dead, but his little son was a spirited boy who desired to serve his people. He begged to go hunting with the men.

"It is too dangerous," said Blue Jay.

The boy clung to his canoe, up to the armpits in water, but Blue Jay struck his hands till he was obliged to leave go.

The men were lucky enough to kill a sea-lion. They were near a rocky island.

"Let us drag it ashore and cut it up here," said Blue Jay. Then, when that was done, he said: "There is not enough here for all the tribe! We had better eat it ourselves, and say nothing about it."

That evening they returned, and there was a great pattering of feet as the women and children rushed down to hear if they had brought anything back.

"No," said Blue Jay. "You must gather mussels."

This happened again the next day, and the day after. Always the chief's son begged to be taken, and always Blue Jay refused, knowing that the youth would insist on bringing back the kill.

On the fourth day, as they sat at their feast, the men suddenly heard a whirring in the air, and a flock of birds flew round and round overhead uttering cries that almost sounded like human shouts of scorn.

That evening there was no rush of pattering feet when the canoe party returned. The men rushed to their homes. All were deserted. Not one of them ever saw his wife and children again—nor did they deserve that they should do so.

THE INVENTION OF MEDICINE

It is all very well to grumble at being dosed: just listen to me a minute, and learn what would have happened if there had been no medicine.

At the beginning of things men and beasts lived together like brothers. But gradually they drifted apart. What was the first little squabble, I wonder, which led to the great separation? Certain it is that men made huts for themselves in clearings, while the animals kept to the woods. Then, one day, when his sick wife was shivering with cold, a man went out with a stone and sling. He came back with the warm skin of an animal. After that there was open war.

The animals met together for counsel. How could they punish these clever wretches who were able to strike down the strongest beast and use its fur to warm their miserable hairless bodies? The animals could not make bows and arrows, hatchets and spears, slings and snares. But they were something of magicians, and so they invented disease.

Before that time there was no such thing as illness. But those angry animals now invented and sent into the world all the sicknesses there are, from measles to lumbago. I do not know who thought of mumps, but it is said that the deer are responsible for rheumatism.

As these fearful curses streamed out into the world it seemed as though the human race must soon be wiped out. But a piece of ivy hung over the mouth of the council cave, and he heard the plot. He crawled away and told it to the oak, who whispered it to the wind, who told the grass and the reeds. The news spread like wild-fire. Now the plants held a council in their turn.

It was in a forest glade. A beech said: "I do not think men should be killed like this. I have a feeling that one day they may do marvellous things. Although they are poor and naked now, I believe that one day they will be as glorious as tigers or pine trees!"

The cowslip said: "Their young ones are almost as pretty as buds. Let us help them against the animals."

Nearly every leaf rustled its approval. One or two plants, such as the deadly nightshade and hemlock, were unfriendly, and the nettle said: "I shall blister them whenever I get the chance!"

But the dock replied: "And I will heal the place!"

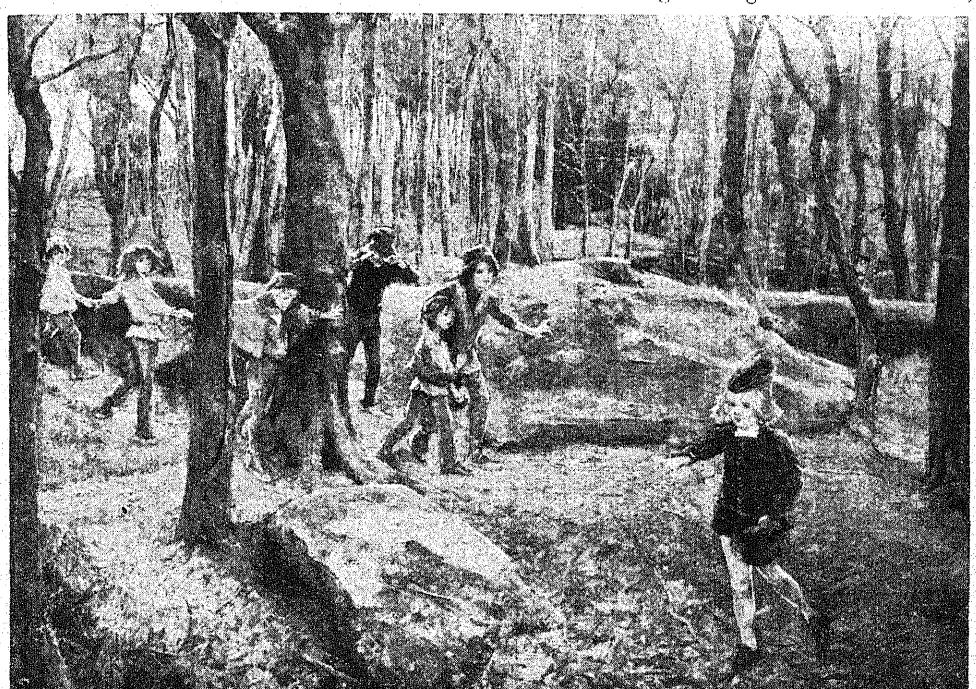
Thereupon the plants set out to make remedies for all the diseases invented by the animals. If you look in your botany book you will find that nearly every herb has a medicinal use besides its beauty. If you screw up your face the next time your mother begins to shake the bottle you are very ungrateful, and you hurt the feelings of the whole vegetable kingdom.

HOP-O'-MY-THUMB

A WOODCUTTER and his wife, who lived on the borders of a huge forest, had seven children. They were all boys, and the youngest of them was so tiny that his father called him Hop-o'-my-Thumb.

Once the woodcutter and his family had been well off, but the time came when things got so bad that the poor man began to wonder if he would always be able to find enough food for them to eat.

Now, although Hop-o'-my-Thumb was the youngest of them all, he was very shrewd and wide-awake, and he knew quite well what it was that was making his father and mother look so worried and anxious.



HOP-O'-MY-THUMB LED HIS BROTHERS HOME—FROM THE PAINTING BY MRS. STANHOPE FORBES

One evening, as he lay awake in his little bed, he heard them talking in the parlour below.

"I cannot bear to see my children starve," his father was saying. "To-morrow I shall take them out into the forest and leave them. Perhaps some-one may find them and care for them."

But the mother burst into tears.

"How can you be so cruel?" she sobbed. "If they are to die it is better that they should die here, where no greater harm can befall them."

But the father would not listen. He, too, loved his children dearly, but he could not bear to see them die before his eyes. And so the plans for the morrow were made.

Hop-o'-my-Thumb was very wide awake indeed by this time, and before he went to sleep he, too, had made his plans. Early in the morning he ran down to the brook, and filled his pockets with little white pebbles. Then he crept back to the house and jumped into bed again.

After breakfast their father told them they were to spend the day in the wood. The boys were delighted, and hurried off with shouts of laughter, but Hop-o'-my-Thumb managed to get behind the rest, and as he walked he carefully dropped his pebbles all along the path.

Soon they came to a part of the forest where the trees grew thickly together. Here their father stopped, and set to work to cut down a tree. The little boys were told to tie up the faggots, and then, when they were too busy to miss him, the father stole quietly away. But it was not long before he was missed, and when they found themselves alone in the dense forest the boys were afraid.

But Hop-o'-my-Thumb smiled to him-self. "Have no fear," he said boldly. "Follow me, and I will lead you home."

Within a yard of where they stood was the last pebble that he had dropped; beyond it lay another, and another, and so, following the stones, Hop-o'-my-Thumb led his brothers safely home.

While all this was happening their mother sat at home, thinking sorrowfully that she had seen her boys for the last time. Presently there was a knock at the door, and in came a forester to say that his master, who had heard of their distress, had sent them a present of some venison. But before the poor woman could answer she heard shouts, the door burst open again, and in ran the seven little boys.

Here we are, Mother!" they cried. "We lost ourselves in the forest, but Hop-o'-my-Thumb brought us home without taking one wrong turning."

Their mother was overjoyed to see them again, and when their father came home in the evening a happier family than theirs was not to be found.

But the venison did not last for ever, and the day came when no food was left in the house but a loaf of bread. Hop-o'-my-Thumb knew this, and guessed what would happen. Sure enough, that same evening he heard the woodcutter tell his wife that once more he must take the children into the forest, in the hope that somebody rich and generous might find them and give them a home.

At daybreak Hop-o'-my-Thumb sprang out of bed and ran down the stairs, only to find the door barred and bolted. In despair he turned and made his way slowly back to bed. But at breakfast an idea came to him. Instead of eating his slice of bread he hid it in his coat, so that he might use the crumbs, as he had used the pebbles, to mark out the path.

Soon the father called the boys, and bade them go with him into the wood. Again, as before, he set them a task, and then slipped away unnoticed.

The boys were not alarmed this time. "Hop-o'-my-Thumb knows the way," they said. But when Hop-o'-my-Thumb came to look for the crumbs that he had carefully strewn there were none to be found! The birds had eaten them.

"Now we're in a pretty pickle," thought Hop-o'-my-Thumb. "Come, boys," he said aloud, "we can't stay here. It will soon be dark, and the wolves will be out."

They found a path and set out bravely. Soon the Sun went down and the shadows began to fall. Presently one of the brothers ran on a little way ahead.

"I see a light!" he shouted suddenly. "Look! There is a house. Let us beg a bed for the night."

They ran and knocked at the door. A woman with a kindly face opened it. But when she heard what they wanted she shook her head.

"Alas," said she, "my husband is an ogre. He will be returning soon, and if he finds you he will kill you and eat you."

The boys trembled.

"We dare not go out again into the dark forest," they said, weeping.

"Come in, you poor boys," said the woman, taking pity on them. "I will do my best for you till the morning."

She hid them away in a garret and left them. Presently the ogre came home. He made such a dreadful noise coming up the steps that one of the brothers peeped out of the window to see what was the matter. The ogre glanced up with a look so terrible that the little boy drew back in terror—but not before he had been seen.

Up the stairs, into the room, strode the ogre. But it was dark, and he could see nothing. He struck a match, lit a lamp, and held it up. In the corner, all huddled together, he saw seven frightened little boys with white faces. One by one he pulled them out and looked at them.

"They will make a fine supper when they are fattened up a little," he said to his wife. "Give them a good meal and put them to bed. See that they have plenty to eat for a week, and by that time they ought to be fit to eat."

When the boys had had an excellent supper they were taken into a room with two enormous beds. In one of these slept seven little ogresses, with seven gold crowns on their heads. Into the other crept the seven brothers. In the middle of the night the ogre woke up and began to feel sorry that he had not killed the boys on the spot. He got out of bed.

"What are you looking for?" asked his wife, waking up.

"My dagger," answered the ogre. "I'll make sure of those boys. Boys are slippery customers—they may escape."

Now, Hop-o'-my-Thumb, who had not closed his eyes all night, heard this.

As quick as lightning he jumped up, snatched up the golden crowns, and put them on his brothers' heads; then he carefully put the boys' nightcaps on the

ogresses' heads, and scrambled back into bed just as the ogre came in. He went up to the bed where the seven little brothers lay, felt the golden crowns, and passed over to the other bed. Here he found seven little heads inside seven little nightcaps.

"Ah!" he said. And with one sweep of his dagger he slew them all.

Directly he had gone Hop-o'-my-Thumb woke up his brothers, and out they all crept. But before they could get far the ogre discovered what had happened.

"Bring me my seven-league boots!" he bellowed to his wife. With these boots he could go at a terrific speed. The boys saw him coming, and gave themselves up for lost. And, indeed, the ogre had nearly reached them when his foot slipped, and he fell—right on to the huge dagger that he carried in his hand. The dagger ran into his heart, and he rolled over, dead.

Hop-o'-my-Thumb ran up to him, dragged off the seven-league boots, and put them on. Leaving his brothers in the care of some woodcutters who were passing, and who promised to take them home, he made his way in fifty strides to the palace. In the palace gardens Hop-o'-my-Thumb was fortunate enough to find the king, surrounded by a group of courtiers, deep in conversation. Hop-o'-my-Thumb hid himself behind some trees and waited.

The discussion was a serious one. It appeared that the king was despairing of getting a message to his generals, who were fighting a great army miles away, in time to be of service. Unless this message could be delivered without delay it would be useless, and the enemy would conquer.

Suddenly, to everyone's amazement, Hop-o'-my-Thumb stepped out from his hiding-place, showed the king his magic boots, and offered to carry the message faster than the swiftest horse. The courtiers were furious at his boldness, but the king, who had taken a fancy to Hop-o'-my-Thumb, silenced them, and gave his consent. Hop-o'-my-Thumb went, delivered his message, and returned in triumph.

From that day Hop-o'-my-Thumb's fortune was made, and he and his parents and his brothers lived happily together.

HOW THE SEA BECAME SALT

IF you want to know how the sea became salt you must forget about the little puny world of today.

I am talking of the spacious time of the giants, of the days when there was a ship so big that she could not squeeze through the Straits of Dover till her sides had been well soaped. After that she managed to slip past, but the cliffs have been white and the waters soapy ever since.

In this noble age there was a king of Denmark called Frodi. He had been given a huge pair of millstones. They were enchanted, and would grind out anything the worker desired. Unfortunately, the king's strongest men could not turn them. Can you imagine anything more vexatious? However, after nearly fretting himself into his grave, Frodi managed to buy two giantesses as slaves. The moment they reached his house they were set to work, and ordered to grind out peace, prosperity, and gold.

The women worked well. Never was there so happy and wealthy a country as the Denmark of those days. But the richer the king grew the greedier he became. The giantesses begged for a little rest, which he refused with brutal threats. Day and night the great mill had to be kept going.

At last it was more than they could endure. One night the giantesses changed their tune. Instead of bidding the millstones grind wealth and peace they sang a song of ruin and war.

While the Danes slept a host of winged helmets came up from the shore; the hall was surrounded, and the king and his warriors were killed.

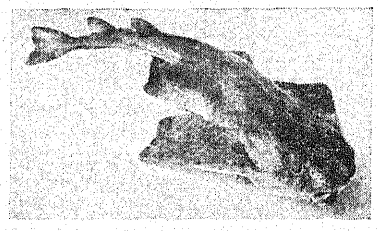
Then Mysinger, the Viking Chief, took the giantesses and the millstones on board his ship, and set sail for home.

Mysinger could not wait till he reached the shore: he must be enriched at once. In those days salt was rare and precious; he therefore bade the women grind salt. When there was a good pile they asked humbly if they might rest a little, but the Viking abused and threatened them as the king had done, and still with aching arms they had to push the great upper millstone round and round.

Soon the ship looked like a floating iceberg, such mountains of salt had been produced. Then there was a cracking of timbers, a lurch, a cry, and the overladen vessel sank with all on board.

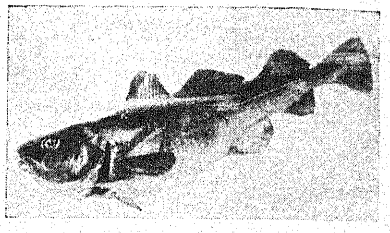
The sea has been salt ever since, and no wonder! As for the poor giantesses, they were so tired that they were thankful to sleep, even on the bed of the ocean.

FISHES OF THE BRITISH COASTS



ANGEL, OR MONK-FISH

SEA-HORSE



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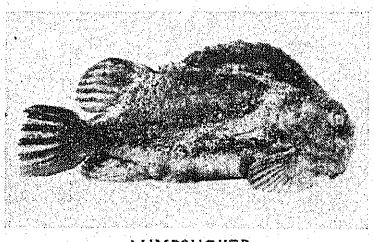

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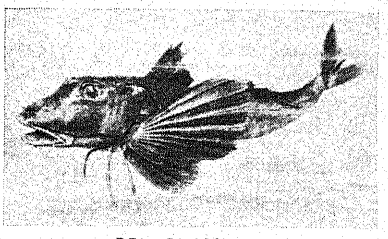

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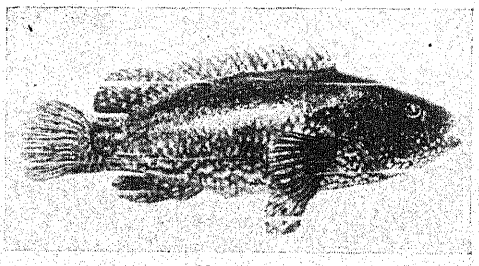

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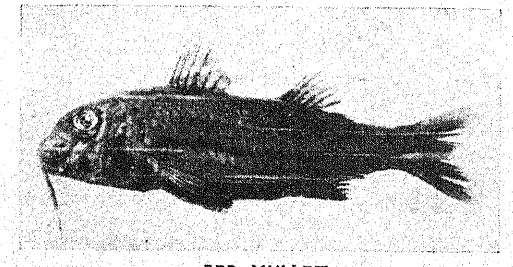

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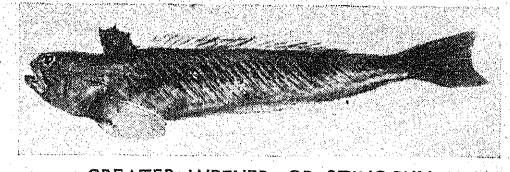

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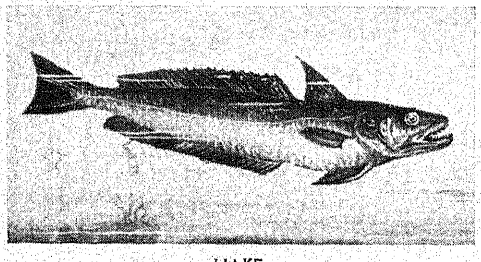

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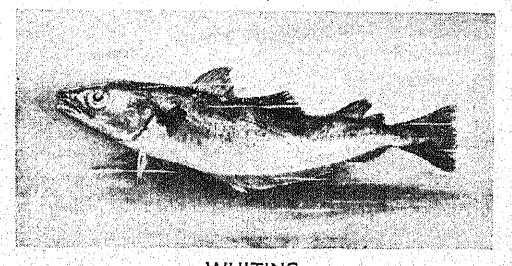

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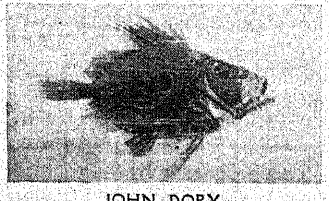

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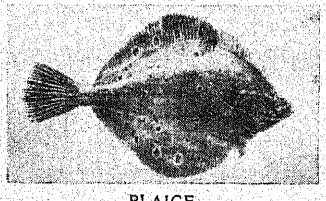

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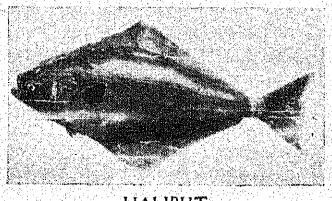

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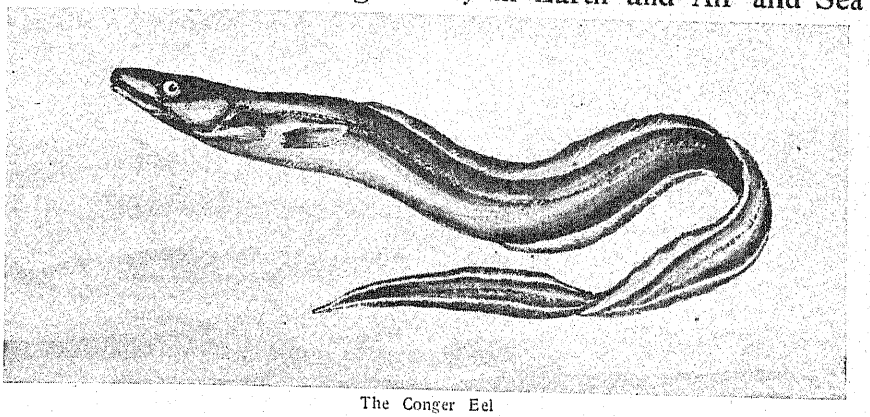

The Conger Eel

FISHES OFF OUR COASTS

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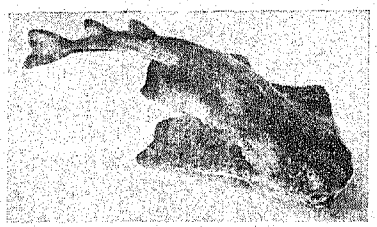

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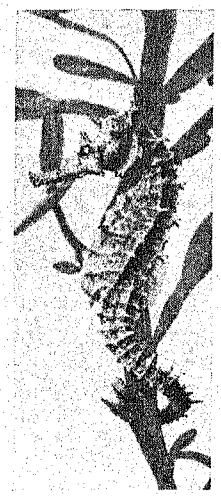

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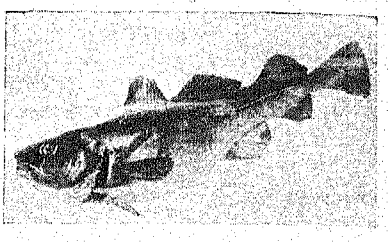

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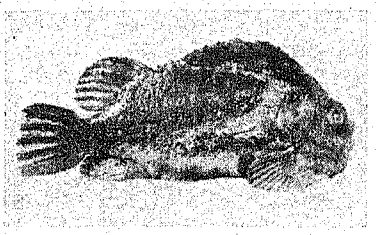

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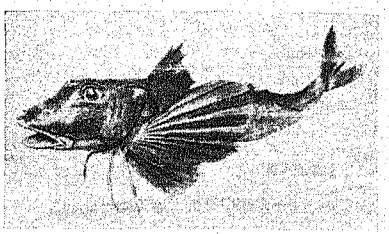

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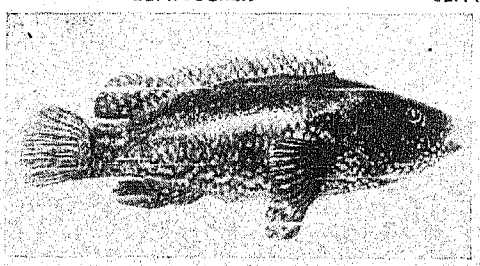

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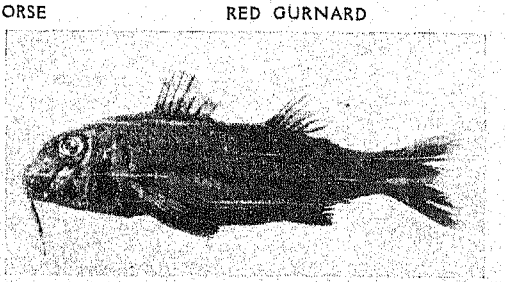

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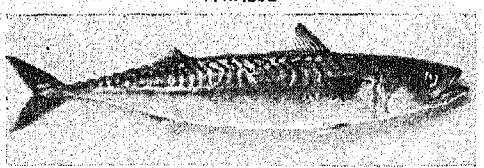

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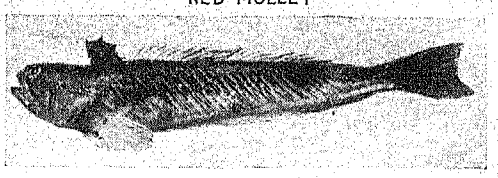

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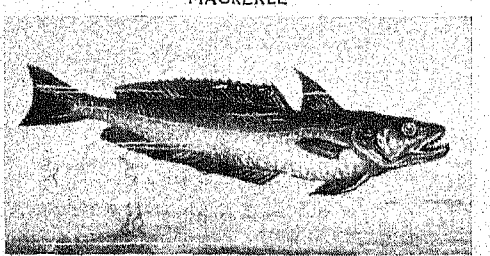

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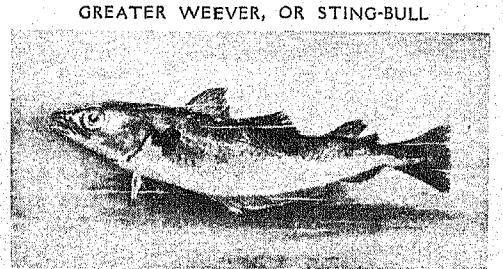

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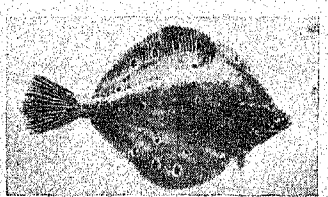

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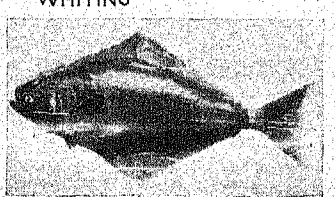

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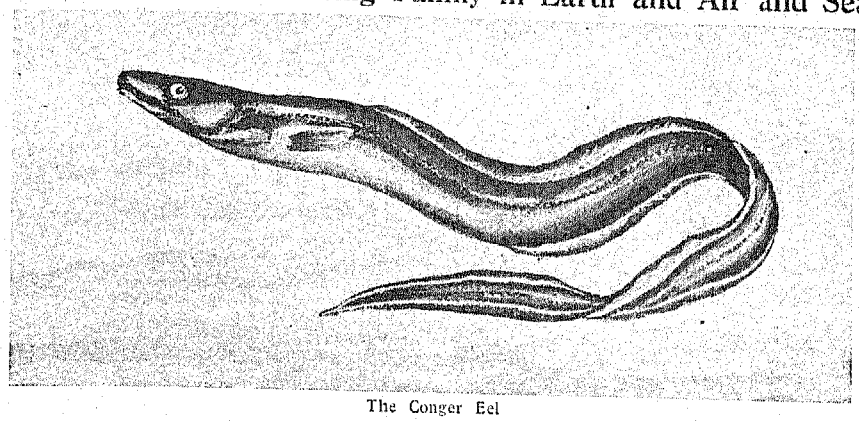

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rock to feed, and return to exactly the same spot when the tide comes back; and no limpet, for all its perfect accuracy of movement, can see.

There is a crab to catch the moving limpet; there is a fish to catch the crab. Sponges siphon food-bearing water in and out of their canals, sea urchins feed and defy capture, thanks to their prickles; starfish with unaided legs open the tight shells of the oyster, though no man can do so with bare hands. Great whelks are sawing with their file-like ribbon tongues through the oyster's shell; the sea anemone swallows the crab which caught the limpet, and the sea slug and the cod dine on the anemone.

LIFE IN THE WATERS UNCHANGED THROUGH MILLIONS OF YEARS

Shrimps and prawns and lobsters in their rocky pools; cockles in the sands below tide ready to leap like frogs at a touch; brittle-stars prepared to explode into fragments like living bombs, if we handle them; living creatures like pens and cucumbers, like lilies and other floral beauties, are in the coastal seas, a rare challenge to the thoughtful mind. They feed in many cases on identical foods, yet each breeds according to its kind. There are things today as they were millions of years ago, now turned to fossils which we dig up whenever we excavate the limestone and chalk of old England.

But we must concern ourselves with fish alone, and they have ways and wanderings which perplex the wisest of naturalists. Seeing how important fish are to us, it might be thought that we should by this time have a complete mastery of the subject; but we have nothing of the sort. Empires have been founded on the herring; the cod, not gold or tales of fairy lands, took our mariner forefathers across the cold Atlantic to fish with bleeding, splitting hands on the Newfoundland banks.

THE MYSTERY WHICH SURROUNDS THE MOVEMENTS OF THE FISHES

But we do not know all about these fish. We do not know where the herring go when they leave our shores. We do not know where the teeming mackerel spend their winters. We do not know why fish assemble in the billions in which from time to time they appear. We do not even know what all fish eat. They rapidly absorb their food, and when caught, cast it up, either from fright or like a labouring ship throwing its cargo overside to lighten sailing.

We do not know why fish should be capricious, and, having created the fortunes of a town founded on them, desert the waters in which they had abounded and vanish. The sea to which we go for pleasure and health is a domain of mystery which men have been sounding for thousands of years without having touched the depths of knowledge.

In normal times fisheries employ, directly and indirectly, one twentieth of our population; there are in good times 100,000 men engaged in fishing, and, whatever their returns today, their catches before the war came to close on 15 million pounds sterling a year.

The sharks should come into this story, for, though we bathe without fear in British waters, sharks do come sailing in from time to time; but we may leave them for another page and admit here only the real shore dwellers of the shark tribe, the monk-fish and the rays.

The monk or angel-fish is a connecting link between the sharks and rays, and must be as detestable as either to his prey. This is a hideous brute which lies at the bottom of the water, invisible in sediment, though five feet long, with a gaping mouth armed with formidable teeth that, in addition to multitudes of flat fish, cracks up lobsters and swallows whelks. The mother fish produces her young alive, 20 at a birth. Very thankful are fishermen when these fishes ascend the estuaries and are caught, out of harm's way, as the men say.

HOW THE RAYS AND SKATES SWOOP DOWN ON THEIR PREY

The rays or skates about our coasts number upward of a dozen species. They are not much smaller than the monk-fish, and, like that animal, are ugly, flattened, variously armed with thorns and prickles on the back, as in the thornback, and with a deadly mail of spines on the whip-like tail. Sluggish in habit, they live largely on shellfish, oysters, mussels, and what not; but they guilefully float above other fishes, then swoop on them, surround them with their sinuous, flapper-like pectoral fins, and devour them.

The so-called devil-fishes of warmer waters than ours belong to this group. They are known to science as eagle-rays, fish 15 feet long, which lash out with their muscular lissom tails all barbed with spines from which a rank poison is said to exude. We have none of these in

Britain, but our cousins in Australasia and the East know them to their cost, and loathe them. The power of the eagle-rays to poison is sometimes questioned, but there is no doubt as to the virulence of the sting-rays, British or foreign, which carry poisonous spines seven and eight inches long on the tail, and cause great pain when they strike human flesh.

We have another British specimen of ray which is as interesting as any ray of the whole family, the torpedo. All the family have some slight power to give electric shocks, but the torpedo has developed the gift exceptionally. Here is a lowly creature of our in-shore deeps, measuring but little and weighing never more than 70 or 80 pounds, which has mastered the mystery of the natural electric battery.

The one thing human electricians cannot give us is an efficient storage battery: our accumulators are always running down. But this humble fish is constantly fully charged without effort or apparent expenditure. A flick of its tail and the fish at which it aims is stunned; and, though the torpedo has the meanest of teeth, it has been known to kill and swallow a five pound salmon. Nature has her own dynamo, we see, and it works perfectly in this ugly fish of our waters.

THE MOTHER-LOVE OF THE TERRIBLE TORPEDO RAY

Nobody likes the rays, and this one is hated, perhaps, more than the rest. But there is something to be said in its favour. It does realise that it has the power of a giant, and restrains itself in the presence of its own. It never emits a charge from its battery when its babes are near, lest it should kill them. So, if there is honour among thieves, there is love among these sly murderers of our murky coastal deeps.

It is pleasant to pass from these unlovely fish to handsome coursers which make life seem gay instead of gloomy and horrid near the shore. We have not to go far out to find the gallant handsome bass, a perch-like beauty, which, though commonly a one or two pounder to anglers on the piers and rocks, runs to 14 pounds when left to mature. It is a swift, gay fish, but to the sand eels, which constitute a considerable part of its food, it must seem as frightful a thing as a man-eating shark is to a human child.

The sea breams, next of kin to the bass, come, with the mullets, into the same group. The breams of our waters number five genera, and some weigh as much as ten pounds. A curious and pathetic evidence of the amazing tenacity of life in fishes has been proved by the breams.

For years examples were caught which seemed to possess no upper jaw, though there was no sign of wound. Long research proved that the fish when young were caught nibbling at a bait, and were hooked with such violence that their upper jaws were torn away. Yet they survived, healed their hurts, grew great and fat, with half their mouths missing, and in the end came to table.

HOW THE FISHERMEN GIVES THE RED MULLET ITS COLOUR

Red mullet is a delicacy with which we are all familiar, though it would not present the ruddy red which we all know were not its scales scraped off by the fisherman. There is a suspicion that cruelty is practised here. The legend is that the scales are removed, not while life is in the fish, but simply before it stiffens in death. But, knowing what we do of the practices of seal fishers, can we be more certain that the man who strips the skin of the poor mullet is more careful, and that he keeps a finger on its waning pulse, so to speak, before applying the dreadful knife?

Happily there is no such doubt about the next group, the gorgeous mackerel. For gorgeous they are in the sea and when newly-drawn from it. There is not a more perfect fish in the waters, blue and black and olive and silver. They sail the seas with the pace of our fastest destroyers, and half their lives are mystery impenetrable to us.

THE GREAT MACKEREL SHOAL THAT WAS FIFTY MILES ROUND

Why do they shoal in such countless millions? They break up at times into single units and are caught in deep water quite isolated. At other times they are countless. One ship steamed round a shoal 50 miles in circumference. And that was only one shoal of many on the move in the North Sea at the time. So tightly are they packed together that once a great grampus, which follows a mob of seals and eats 20 in succession, was seen practically suffocated by the enormous pressure of mackerel into which he had ventured. The mere weight and mass of the racing fish prevented his rising to the surface to breathe.

But toothed whales and other hungry creatures follow the mackerel with safety, browsing on them as a cow on grass. If the fish were swimming singly the big enemy could not thus destroy them.

The same thoughts are forced to mind by the herrings, whose shoals are still more numerous in point of individual fishes and total of shoals. They surge up to the land in swarms beyond calculation. They start in the north-east and come in, wave after wave, month after month, right down the coast, round to the south and up on the west coast. At times the pressure is so great that they are even forced into the rivers, and one has known them to be netted in multitudes far up the River Dart in Devon.

THE MILLIONS OF HERRINGS THAT COME TO OUR COASTS TO LAY EGGS

The herrings are a fascinating mystery. Why do they arrive in successive shoals? Why not all at the same time? Have those which come late farther to swim in from distant oceans deeps? Or is it that the desire to lay their eggs does not ripen till later? And where do they go after they have spawned? Nobody can tell.

Perhaps it is well that we do not know, or we should have fishermen seeking them with new methods out of season as well as in season. And that might be fatal.

When we remember that 854 million herrings have been landed in one season at Yarmouth and Lowestoft alone, we get some idea of the numbers of these fish that annually visit our shores to lay their eggs. A good herring year means prosperity all along the East coast, from Scotland southwards. The money earned enables young couples to set up house and marry; a bad season means that love's young dream across the border and down the line of English fishing stations cannot be realised, but sighs and sadness must prevail till the fish swarm again.

THE PILCHARDS WHICH VANISHED AND RETURNED AGAIN TO THEIR HAUNTS

The pilchards are less important, but they were as settled a harvest at St. Ives and other Cornish centres as the hay crop to the farmer. For years, for generations, they had not failed. Then suddenly they ceased to frequent their ancient haunts. For years they remained away. St. Ives was desolated. The fishing fleet was broken up, the boats were sold or allowed to fall out of repair, and many of their owners emigrated. Then, without known cause, the pilchards returned as of yore. St. Ives recovered its old prosperity and poured blessings on the pilchards which it had long become accustomed to denounce in bitterness and sorrow.

Which of these edible fish gives us the whitebait? Practically any young fish; young herrings, young sprats, and other small fry are the whitebait.

And how shall we tell herring from pilchard, and both from sprats? The sprat is like a small herring, but the under part of the body has a bristly fin where the herring is smooth; and the pilchard is a heavy-headed member of the same group, yet easily distinguishable.

Shads, of which we have two British species, are larger than herrings, and seized with a craving for sweet waters when nursery times are near, ascend our rivers to found new families. It is as well that the bullheads, gurnards, and weevers have not the same habit, but keep to the sea. They all have spines, the weevers being really dangerous to handle, so sharp are their weapons and so perfect their concealment in seaweed which one may pick up to find a mass of piercing, lance-like prickles hidden within.

All these fish are notably quaint in shape, and the gurnards, which have lovely colourings in their scheme of decoration, have a peculiar power of calling. Really it is a hoarse grunt, most startling when one is being handled alive.

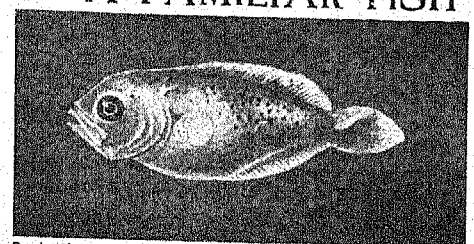
THE GRUNT OF THE GURNARD WHICH BOATMEN HEAR AT SEA

What purpose can that noise serve? Fishes are supposed not to hear, yet gurnards make such noises that they can be heard by boatmen out at sea. May we not imagine that the sudden little bellow which alarms us has some purpose in frightening off foes unknown to us, which do hear in the waters? At any rate, with spines and bellowings the gurnard seems specially well defended.

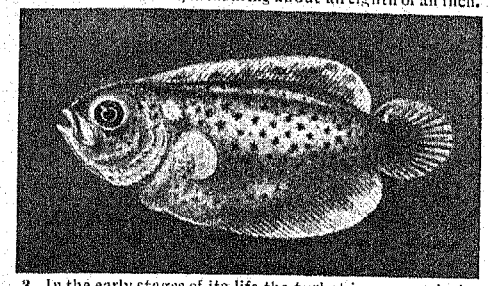
There is much of interest about the gobies, which anchor their eggs neatly by filaments to fixed objects at the bottom of the sea; the blennies, in which the mother jealously guards her eggs, the dragonets which lay exquisitely chiselled eggs at the surface of the water; the hideous but loyal lumpsucker whose devotion to its eggs is such that it will even lie half exposed when the tide runs out, faithful to its trust even though birds and rats approach to eat it alive.

THE AMAZING STORY OF A FAMILIAR FISH

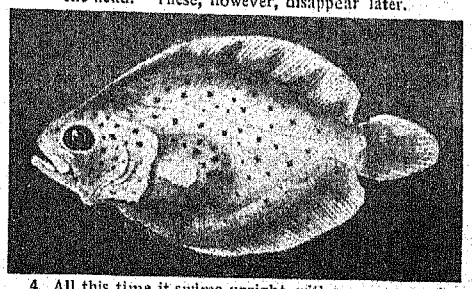
1. These pictures show the life-story of a young turbot. When it is hatched from the egg and has lived a day or two the turbot is like this, measuring about an eighth of an inch.



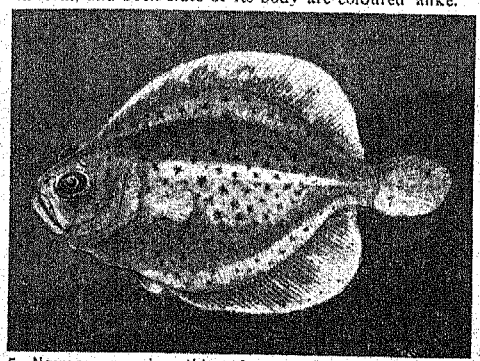
2. As the turbot grows it changes shape, and when about three-fifths of an inch long it begins to develop spines on the head. These, however, disappear later.



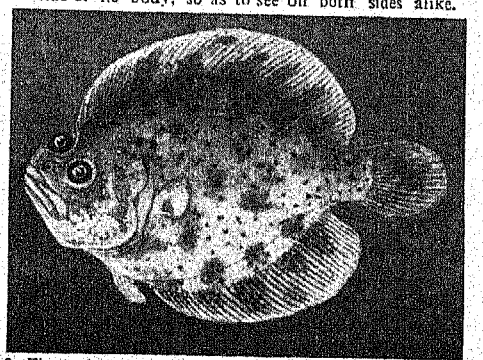
3. In the early stages of its life the turbot is symmetrical in form, and both sides of its body are coloured alike.



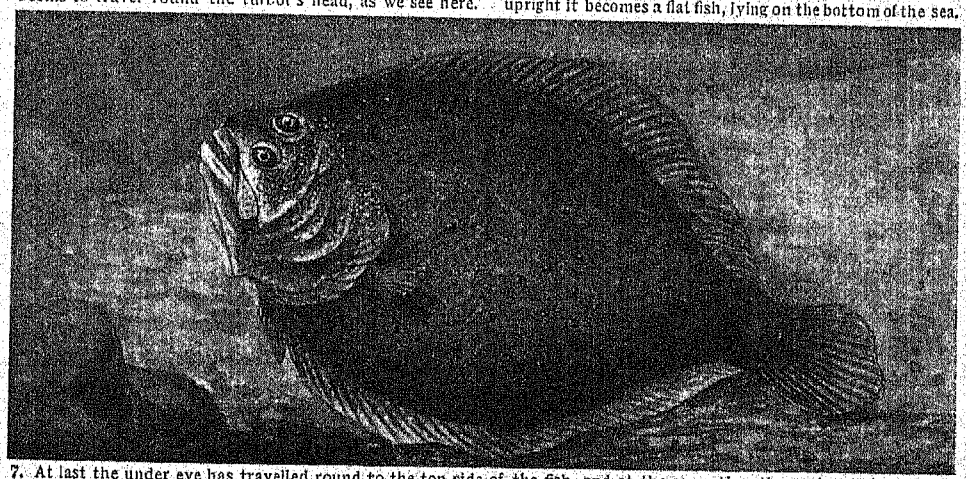
4. All this time it swims upright, with an eye on each side of its body, so as to see on both sides alike.



5. Now an amazing thing happens. One of the eyes begins to travel round the turbot's head, as we see here.



6. The turbot changes its habits, and instead of swimming upright it becomes a flat fish, lying on the bottom of the sea.



7. At last the under eye has travelled round to the top side of the fish, and at the same time the under-surface of the turbot becomes white, so as to make it invisible when seen from below against the sky. The other flat fishes such as the sole, change their form and habits in the same remarkable way.

The sea has its faithful sticklebacks, the 15-spined; and not far from the haunts of these we find the pipe-fish and the sea-horse, nurses as constant as the lump-sucker and the stickleback. The pipe-fish floats at ease in a straight line; the sea-horse, so called from the extraordinary resemblance of its head to those old Greek carvings of horses with which we are familiar, has a tail which is as good a grasping organ as the American monkey's.

By its aid the sea-horse anchors itself to weed and other objects and lets food come to it. But it has this in common with the pipe-fish, its kinsman: like one of the frogs, the seahorse and the pipe-fish receive the eggs from the female into a brood pouch and keep them there till the babies emerge. In time of danger the little hopefuls return, like baby kangaroos, to the pouch from which they emerged. There may not be genius in these little things, but affection can go no higher, sacrifice achieve no finer results.

Next we come to a very different fish, the conger eel, more often seen in shops than by visitors to the seaside, owing to its habit of keeping well out from shore in deep, rocky water by day and coming toward the coast, if at all, only in the night. Seen in the water a conger, six or eight feet long and weighing over a hundredweight, must often have given rise to legends of sea serpents.

A DIVER'S THRILLING ADVENTURE WITH A GIANT CONGER EEL

Their lithe, active movements, their snake-like shape, their courage and ferocity, all combine to further the idea. One experienced Government diver, who was repairing the foundations of an old sea wall, was horrified to see the head of a huge creature, which he mistook for a snake, dart out from the wall at him, then as rapidly withdraw.

Examination showed that it was a mighty conger entrapped in the masonry. By some means it had got into the wall and could not get out. Its body, which the diver never discovered, was in the wall itself, and only the head and shoulders protruded. But day after day as the diver worked, the conger sought to attack him, and failing him, caught fish after fish as it passed. There it may be to this day for all one knows, for the diver, safe himself from assault, did the eel no harm.

In general divers fear congers next to octopuses and sharks, for these eels, once they fix their teeth in an object, will not let go unless they are killed, and even then the jaws have to be prised open. The writer rowed home a mile or more in a storm with a 15-pound conger in the boat biting the heel of his shoe with the tenacity of a bulldog.

However, they are clean-feeding creatures, much more particular than the river eels, and they form a valuable food to enormous numbers of poor people. He who eats conger gets the net result of crabs and lobsters and swarms of all sorts of fish which have gone to build up the flesh of that sinuous muscular terror of the rocky waters.

THE WONDERFUL STORY OF THE WAY THE FLAT FISHES BECOME FLAT

The quaint John Dory, the wrasses with their fine colouring, the many grey mullets, which are not the same kind as the red—these and other fishes demand attention which it is impossible to accord here, as we need space for the most remarkable of all, the flat fishes.

We cannot be said to have dealt with the unusual flat fishes in mentioning the rays, for there we had fishes with the back uppermost and the abdominal features beneath, as in the case of reptiles. But the true flat fishes are every one of them freaks systematised and made permanent. They all begin like other fish, vertical swimmers, with a left side and a right side, swimming as upright as sprightly herrings, with one eye on one side of the head and the second eye to balance on the opposite side.

Early in life these fishes begin to topple over, as it were, to incline to the left. They flatten out, lying on the side, so that what was the left becomes the underside, and what appears to us to be the back is really the right side. The head undergoes a ludicrous change to match, and, greatest wonder of all, the left eye makes the most adventurous journey known to anatomists; it travels literally round the head, from left to right, to anchor itself in the end on the other side in line with the right eye.

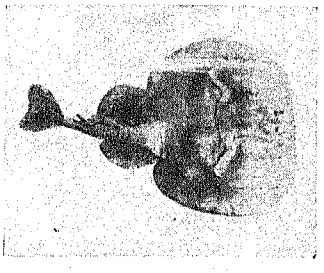
THE SLUGGISH CREATURES THAT MOVE LIKE SUBMARINE RAFTS

From that time forth the flat fish is a sluggish flopper. Its home is at the bottom of the water, and it moves only by undulating motions, no longer capable of the darting flight through the sea common to its children and to nearly all other kinds of fish.

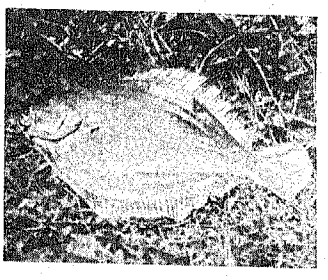
We call this a freak; it must have been so originally, for the normal fish outline is so admirable for progress through the water that man with his fine intellect has been content always to endeavour to model his fastest and best ships in accordance with this form. But the flat fishes, having been submarine cruisers, have become submarine rafts. Yet they have done well, and today form a family of nearly a score of genera.

We have plaice, dabs, flounders, halibut, brill, turbot, megrim, topknot, of various kinds, scald-fish, soles of more than one kind, and allied forms known as thickbacks and solenettes. All of these are true to the eccentric form already described. Each genus has its own peculiarities in size, markings, habitat, teeth, food. And so well does the life suit that the adults are strong enough to produce eggs by the million.

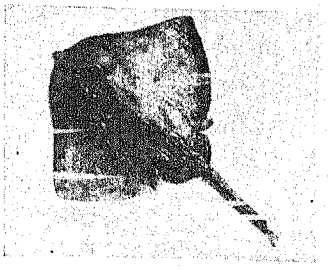
Although the sole and turbot are the most favoured of the flat fish, the plaice are by far the most important as a food for man. Some are a foot and more long



TORPEDO, OR ELECTRIC RAY

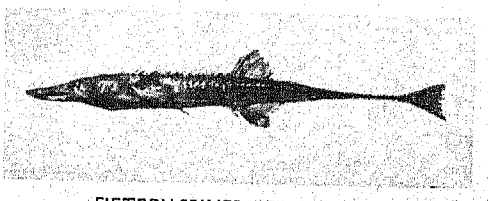


BRILL

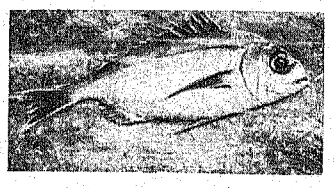


SKATE

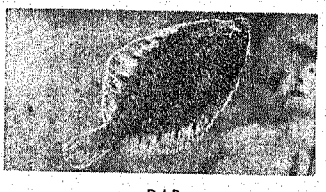
GREAT PIPE-FISH



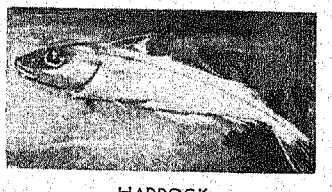
FIFTEEN-SPINED STICKLEBACK



SEA-BREAM

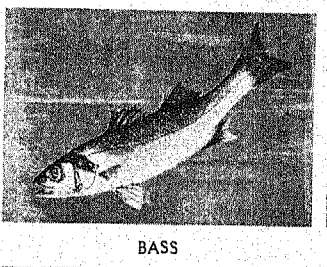


DAB

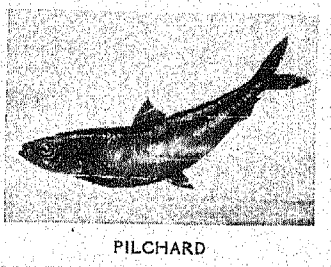


HADDOCK

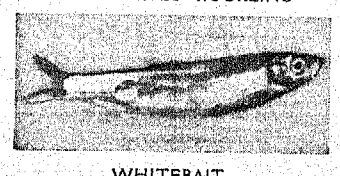
FIVE-BEARDED ROCKLING



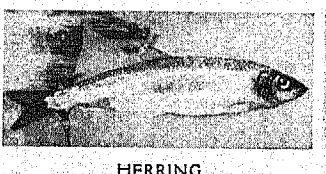
BASS



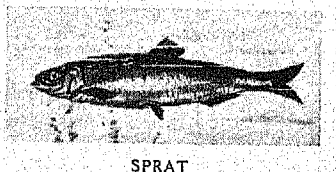
PILCHARD



WHITEBAIT



HERRING



SPRAT

and weigh as much as a stone, though such prizes are naturally rare. Now, it is because so many small plaice are caught in our inshore waters that the idea has occurred of catching them young and putting them out to nurse in the midst of the Dogger Bank's abundant food supply.

We know that the project is wise, for it has been found that young plaice grow nearly five inches in the course of a year, after their transportation to the happy hunting ground, whereas the normal increase is but two inches in the crowded waters near the coast where competitors of food are numbered in millions. Yet see how much better Nature manages her affairs than we imagine

HOW NATURE DECEIVED MAN BY SENDING GREAT SHOALS OF FISH

Sunken vessels afforded sanctuary to fish in the North Sea throughout the war; great areas were mined so that they could not be fished; submarines made other vast tracts a forbidden preserve. When the war ended and the mines were swept up, fishermen went back to their old haunts, and made great catches of flat fish. Good, said they; the rest given to the flat fish had resulted in an enormous increase, as had been predicted.

But lo, the same thing happened in areas which had been regularly fished throughout the war; great catches were made there as well. In the following year we were back to normal, as in 1913, no better no worse, in the fields newly re-opened and in the parts which had been regularly fished all along.

The big catches had resulted from one of those periodic high tides of fish life which come to the seas, wars or no wars. And the year that followed saw the usual ebb of the life tide as always happens. Nature, not artificial sanctuary, had promoted the increase.

THE EFFECT OF WAR ON THE FISH ROUND OUR COASTS

Still stranger, the great number at first caught were not fish fat and large beyond precedent as had been expected. As a matter of fact, they were rather smaller, rather lighter in weight. They had taken longer to grow up when not pursued by man than when in constant danger from his trawls. Why was this? Because the nets which keep down the numbers of fishes keep down the number of rival competitors. There had been an increase of numbers by natural means, but that very increase of unchecked numbers had led to the development of so many more mouths to feed · there had been less food to go round.

The decline in the numbers of flat fish showed that there was no incalculable reserve. For the total had been kept within limits by the enemies of the flat fish which men had failed to catch. Wise Frank Buckland told the Government years ago: "If you establish a close season for one kind of sea fish, you establish a close season for that fish's enemies also, and the enemy fish will take more than human fishermen would catch." And so results have thus astonishingly proved.

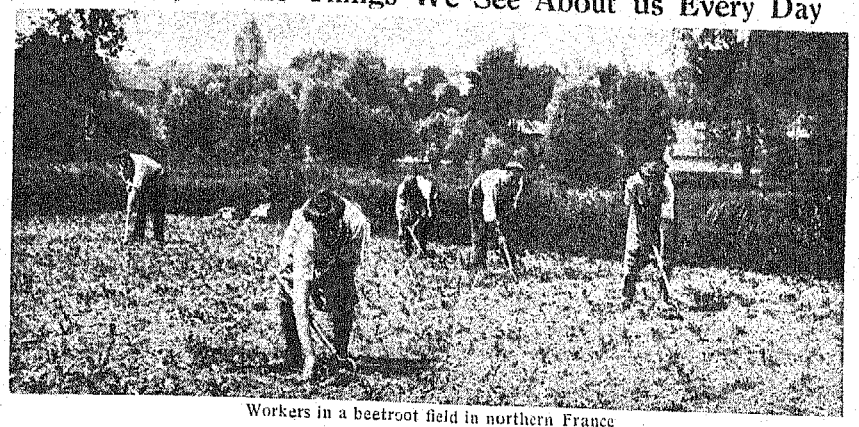
Flat fish produce enormous numbers of eggs—the turbot may produce nine millions a year. But this is not a greater total than that for which the female cod is responsible. We should expect this valuable fish to be prolific, for it is a great feeder, sea-birds and baby sharks being included in its wide range of diet. It is the most important member of a highly important family, which embraces the whiting, trout, haddock, pollack, coal-fish, hake, ling, the rocklings, and others.

HOW THE FISHES HELPED TO BUILD THE BRITISH EMPIRE

All these are of the fruits of the sea which men risk life and comfort and health to harvest for us. A history of the world might be written around sea-fishing. The industry built Holland the biggest fleet of ships the world had ever seen up to that time, and made her mistress of the seas. The cod called our daring adventurers to the New World before ever we dreamed of founding an Empire in the West.

It was they who fought and sailed with Drake, who helped to beat the Spanish Armada and to make the name of England terrible at sea. Out of the convoys of crazy craft that sailed the wild Atlantic in search of the New World cod, rose our mercantile marine and our organised fleets of war vessels.

With these we sought the wide seas o'er, and founded an Empire such as mankind had never known. We are islanders with the salt sea in our blood. The fish swim at our country's edge; but there are more fish in the waters beyond. Wherever they live our men have sought them, and in the result have made us a nation incomparable.



Workers in a beetroot field in northern France

SUGAR AND HOW WE GET IT

THE history of civilisation might be written round the sugar-basin.

We could hardly live without sugar, so important is it to us as a food and a luxury; yet not so very long ago sugar was rarely seen in the homes of the poor. But the sugar-growing industry has become one of the most important in the world, and today more sugar is grown than ever was known before. The total production is about forty thousand million pounds.

Sugar is found in the sap of many trees, especially in that of the maple. It is found in all fruits, and in the nectar of thousands of flowers, but it is from the sugar-cane and the beetroot that we get our supplies for commerce.

For ages the sugar-cane was the only source of supply, and it is strange to think that at one time all the sugar came from a single spot in the world. It would not be safe to say that it was in Bengal that the sugar-cane first grew, but it seems certain that in Bengal the process of extracting sugar from the cane was first learned by man. More than 800 years before the birth of Christ the Chinese copied the valuable art from the people of Bengal, and then, 1600 years later, the Persians began to cultivate the sugar-cane. It was the Persian doctors who first introduced the use of sugar into medicine—a fact for which all young patients will bless them. The Arabs, when they established colonies round about the Mediterranean, grew the cane there, and then the cane slowly made its way into Egypt.

Little by little it was carried to other warm countries of the world. Missionaries took it with them, and taught natives to cultivate it; travellers carried it to the lands they explored; and eventually sugar-cane was grown throughout the West Indies, the East Indies, the warm lands of the United States, in many South American countries, and elsewhere.

The discovery of the richness of the beetroot in sugar helped to bring about a crisis in the cane-sugar industry of the West Indies in the latter decades of the nineteenth century. From about 1840 onwards enormous quantities of sugar-beets were grown in France, Germany, and Russia, and the new industry, which was fostered by a system of bounties, at last caused many West Indian planters to grow bananas in place of sugar-canes. But the early years of the twentieth century saw a larger increase in the world's production of cane-sugar than of beet-sugar, and the Great War gave the beet-sugar industry a blow from which it was slow in recovering, production having been lessened in France and Germany, while in

Russia, formerly a producer on a very large scale, beet-growing was reduced to a minimum. The demand for sugar during and immediately after the war resulted in further prosperity for Cuba and other cane-sugar areas, the production rising from 9,577,000 tons in 1913, to an estimated total of 11,828,000 tons in 1920. Attempts have been made to introduce sugar-beet growing into England on a commercial scale, and perhaps success will come some day.

THE SPANIARD WHO DID A GREAT THING A HUNDRED YEARS AGO

Until the end of the eighteenth century sugar was consumed in a raw state, but in 1792 a Spaniard invented a method of refining sugar, and since that time most sugar is refined before use. Crude cane-sugar is quite wholesome and agreeable to the taste, and in countries where it is grown the natives suck and chew the actual cane; but beetroot-sugar, until refined, is disagreeable in odour and taste. When thoroughly refined the two sugars are indistinguishable.

The sugar-beet is not purple-red in colour like the beet of the dinner-table but white, and it has been carefully cultivated and selected to increase its sugar value. The sugary juice is extracted from the sugar-cane by crushing rollers; formerly the extraction was made from the sugar-beet by the same sort of operation, but now it is separated from the roots by a process of diffusion.

Besides cane and beet-sugar, there are also palm, maple, maize, and sorghum, but only small quantities of these kinds of sugar are produced.

The consumption of sugar varies greatly in amount in different countries. In England far more is consumed than in any other country. Immense quantities are made into jam.

THE WONDERFUL FOOD VALUE OF A PRODUCT OF STARCH

Chemically speaking, cane sugar is a *carbohydrate*—that is to say, it consists of carbon, hydrogen, and oxygen, with the hydrogen and oxygen in the proportion in which they occur in water.

The sugar known as levulose, which is found in honey and in many fruits, is a form of cane-sugar; but is sweeter and even more rapidly absorbed.

Sugar is one of the most important of all food substances, for not only is it a concentrated food in itself, but it is the form in which starch circulates in a plant before its storage. It is, indeed, really a product of starch, and, therefore, it is ultimately made by the sunlight acting through the chlorophyll of the green leaf. We divide food into three chief classes: the carbohydrates, the proteins, the fats; and of the carbohydrates sugar is the most highly concentrated.

Sugar is quickly absorbed by the digestive organs, and is one of the best of all muscle foods. Children who are always running about and moving their muscles have, therefore, a natural craving for sugar and sweet things, and in many armies soldiers who are doing heavy muscular work are given an extra allowance of sugar.

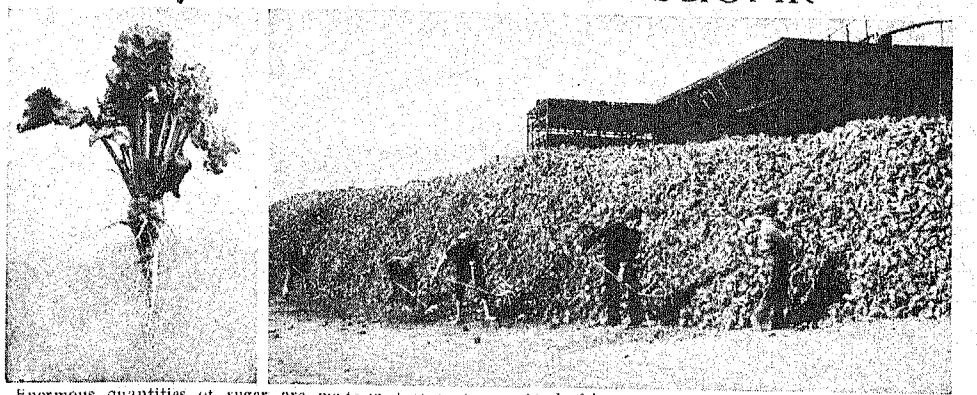
The child's craving for sugar has a very good reason behind it, and it should not be altogether denied; but it is also to be borne in mind that sugar in large quantities destroys both the appetite and the digestion, and unless the toothbrush is frequently and carefully used, hastens the decay of the teeth.

THE IMMENSE POWER WHICH RUNS TO WASTE FROM OUR DAILY BREAD

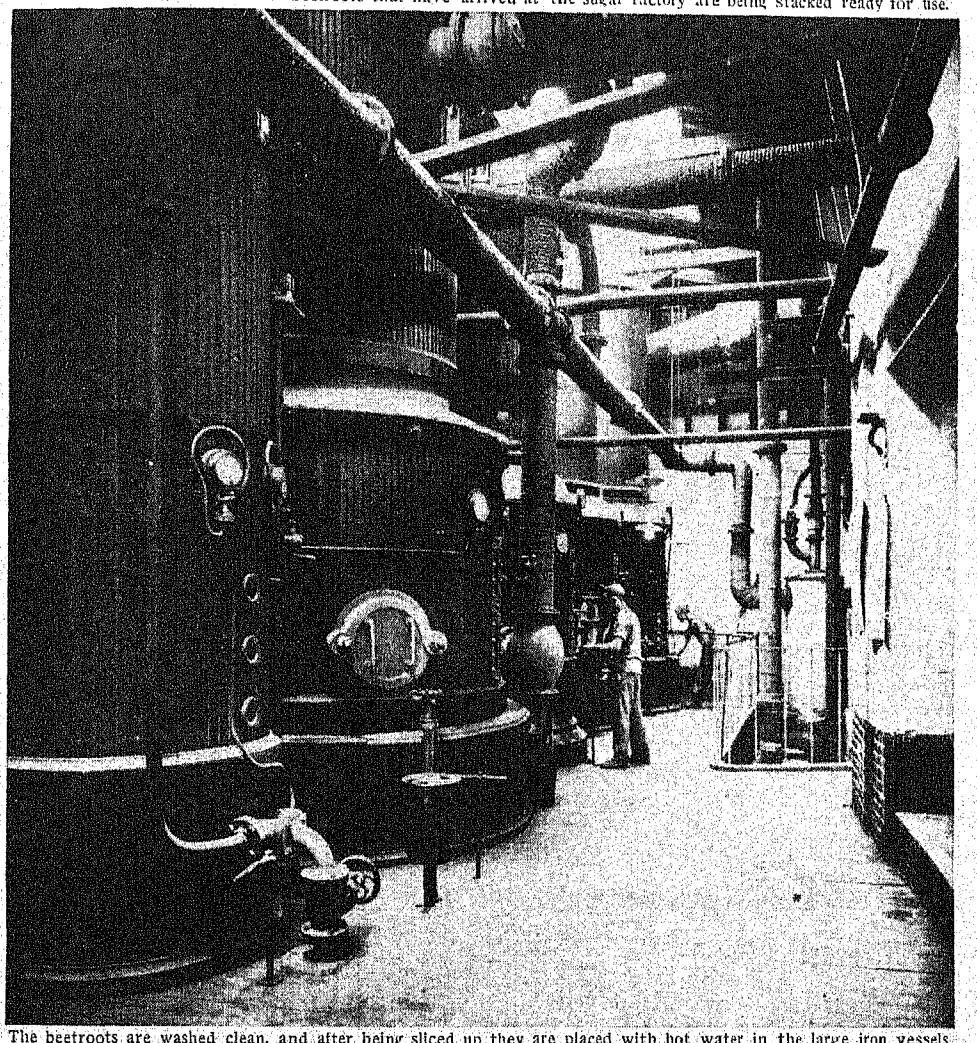
Many articles of food such as chocolate and cocoa, owe their value chiefly to the sugar added to them.

It is interesting to note that when sugar is melted at about 320 degrees Fahrenheit, it becomes barley-sugar on cooling, and if it is further heated it turns into caramel. When yeast cells act on solutions of sugar they break up the sugar into carbon dioxide and alcohol; and in time alcohol, being a poison, poisons the yeast-cells and kills them. When yeast is used in bread-making the same substances are formed, and the carbon dioxide makes the dough rise, and the alcohol is driven off by the heat. Every day great quantities of alcohol are lost by evaporation from loaves; not a bad loss, seeing the deplorable uses to which alcohol is put. Yet this sugar-made alcohol might be used for splendid purposes, for although alcohol is a poison, in other ways it is useful to mankind. It is useful as a source of power, and also for dissolving substances, and it is useful as a preservative. So that when we consider the many uses of sugar alcohol must be put to its credit, however pitiable is the misuse we make of it by turning this product of a valuable food substance into a source of disease.

PICTURE-STORY OF SUGAR

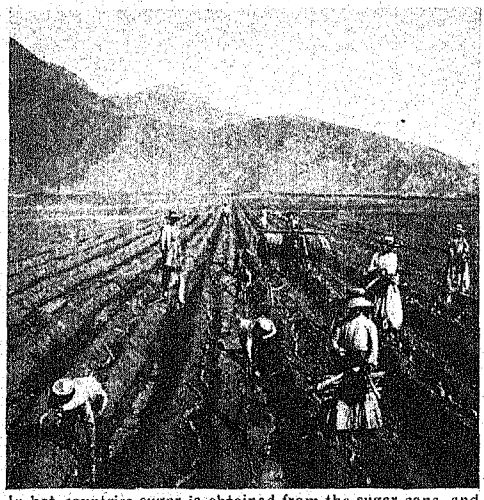


Enormous quantities of sugar are made in Europe from a kind of beetroot called the sugar-beet, seen on the left. On the right millions of beetroots that have arrived at the sugar factory are being stacked ready for use.



The beetroots are washed clean, and after being sliced up they are placed with hot water in the large iron vessels seen here, called diffusers, where the sugar is dissolved out of the beets. The water passes through cylinder after cylinder, at each stage becoming more saturated with sugar.

THE SUGAR-CANE IS CUT READY FOR USE



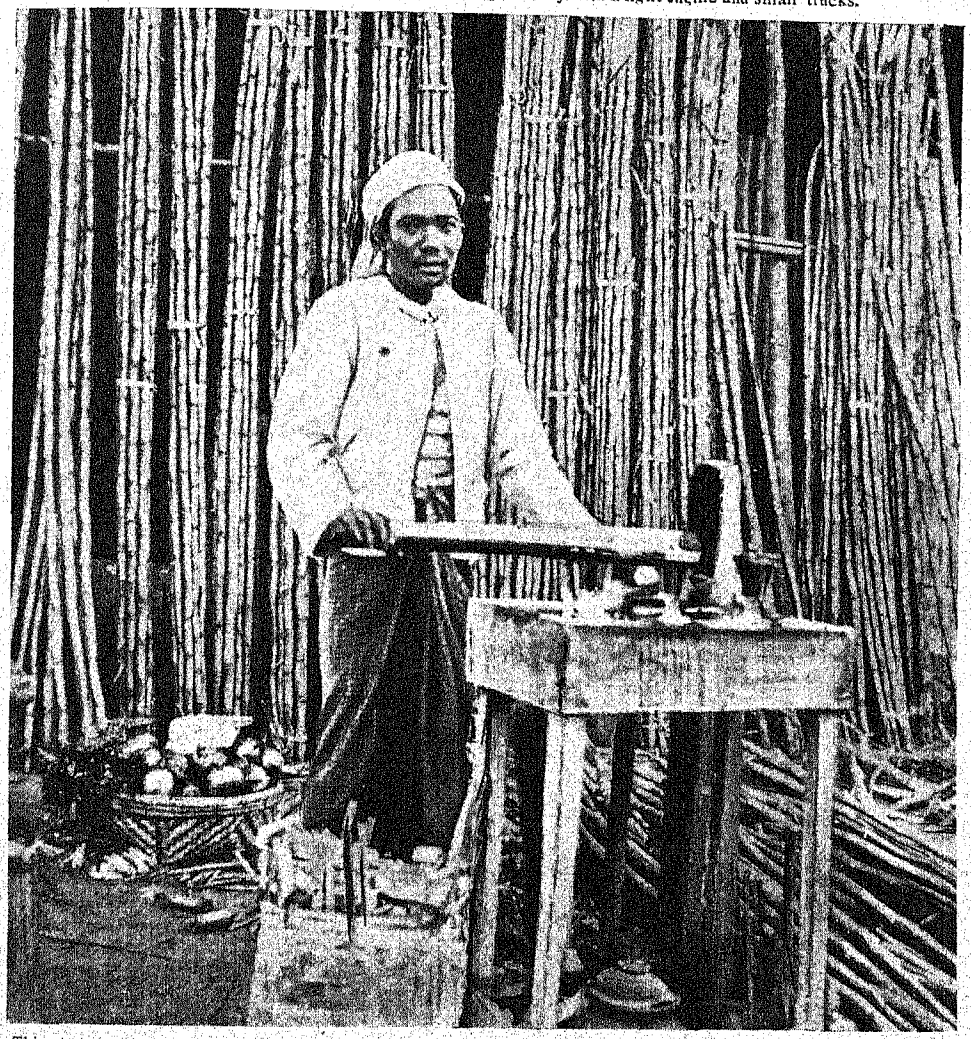
In hot countries sugar is obtained from the sugar-cane, and here we see workers in Peru planting the cane in trenches.

Here the sugar-cane is being harvested on a plantation near New Orleans, in the United States, by Negroes.

This picture gives a good idea of a sugar-cane plantation. It shows the workers in Jamaica cutting down the full-grown cane, which will be carted at once to the factory to have its sugar extracted by processes shown in later pictures

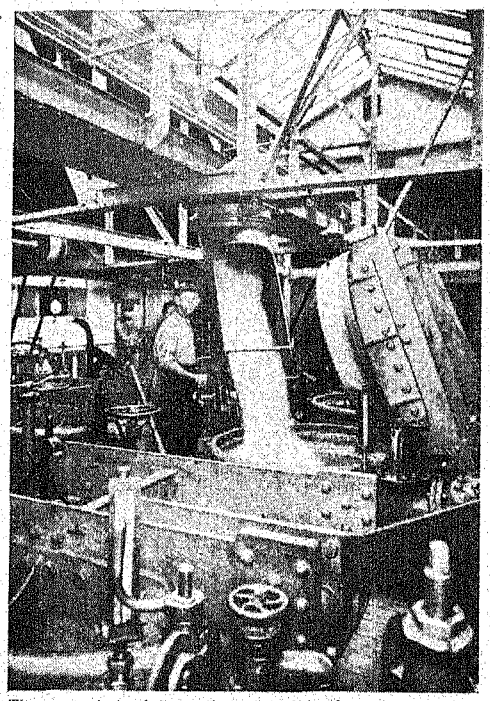
SUGAR-CANE IN INDIA AND AUSTRALIA

The tropical parts of Australia grow sugar-cane, and here we see it being transported from the plantations to the factory on a narrow-gauge railway with a light engine and small trucks.

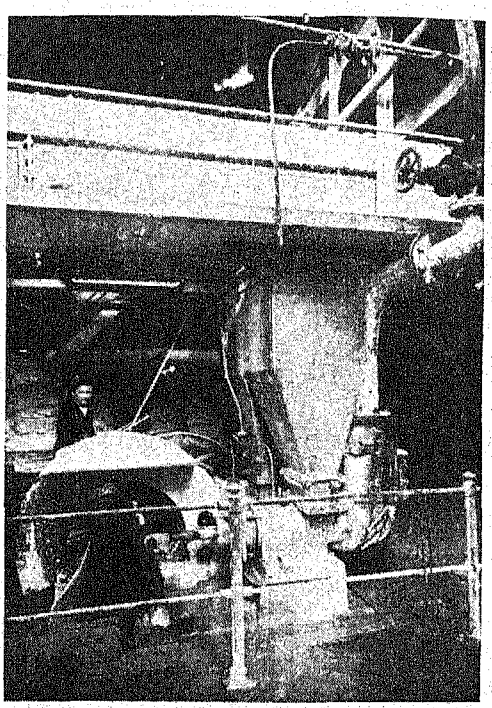


This photograph taken in an Indian village shows a Burmese merchant selling sugar-cane. In tropical lands a good deal of cane is sold in this way, the natives either chewing the cane or extracting the sugar by crude methods.

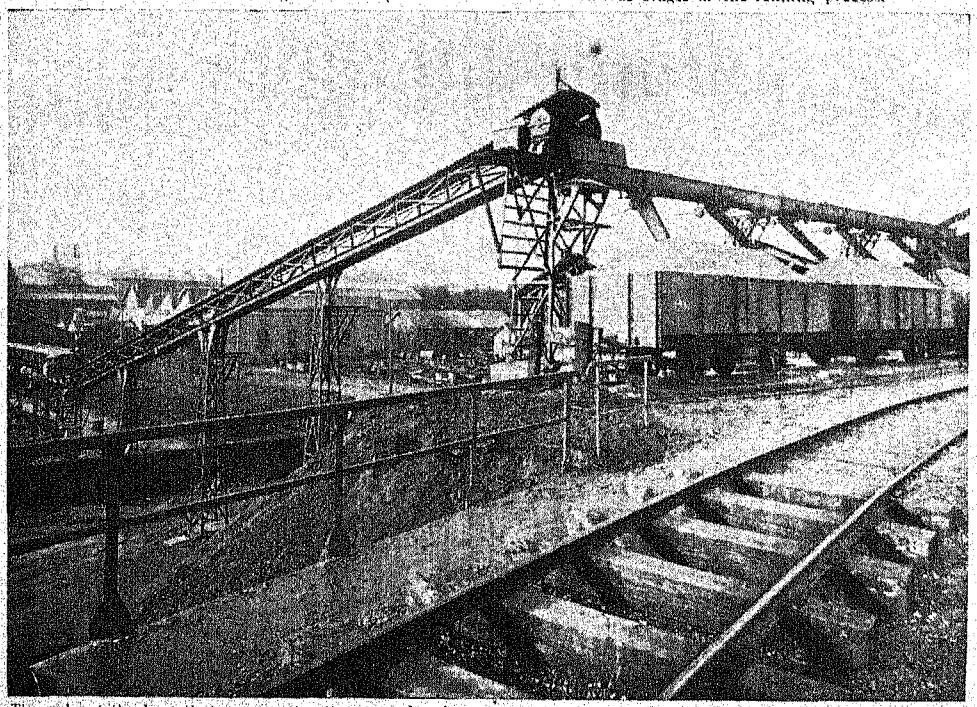
THE REFINING OF THE SYRUP BEGINS



The syrup derived from the extraction of sugar from the beetroots in the diffuser is passed, as seen here, to vessels where it is mixed with lime to get rid of impurities.

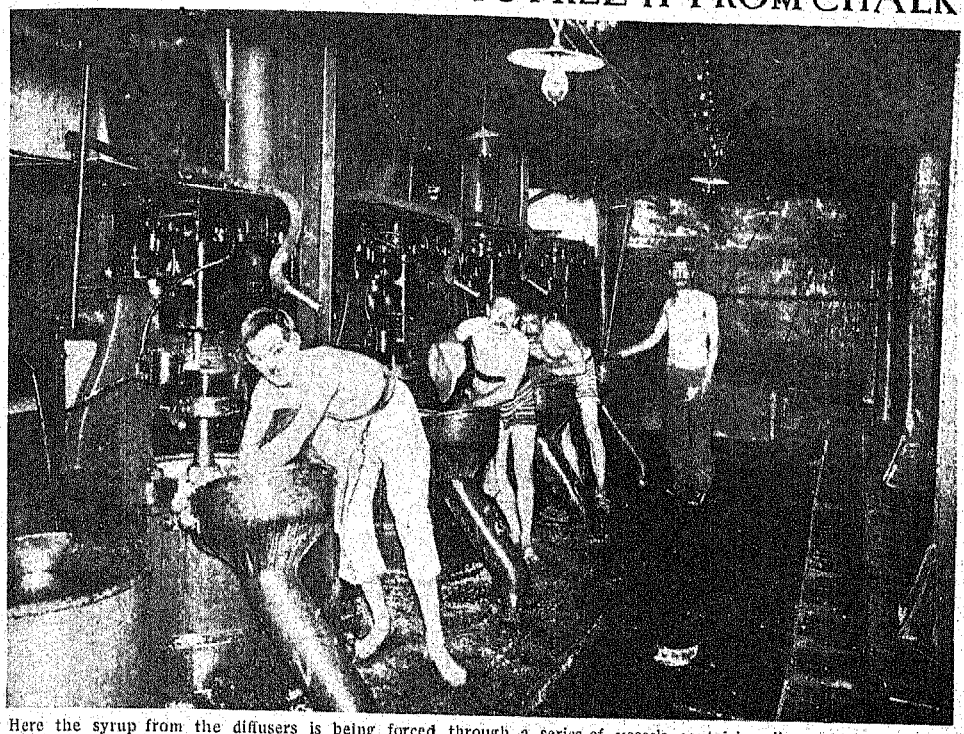


This shows the great pumps that are used to pump the syrup through pipes to different parts of the factory, at various stages of the refining process.

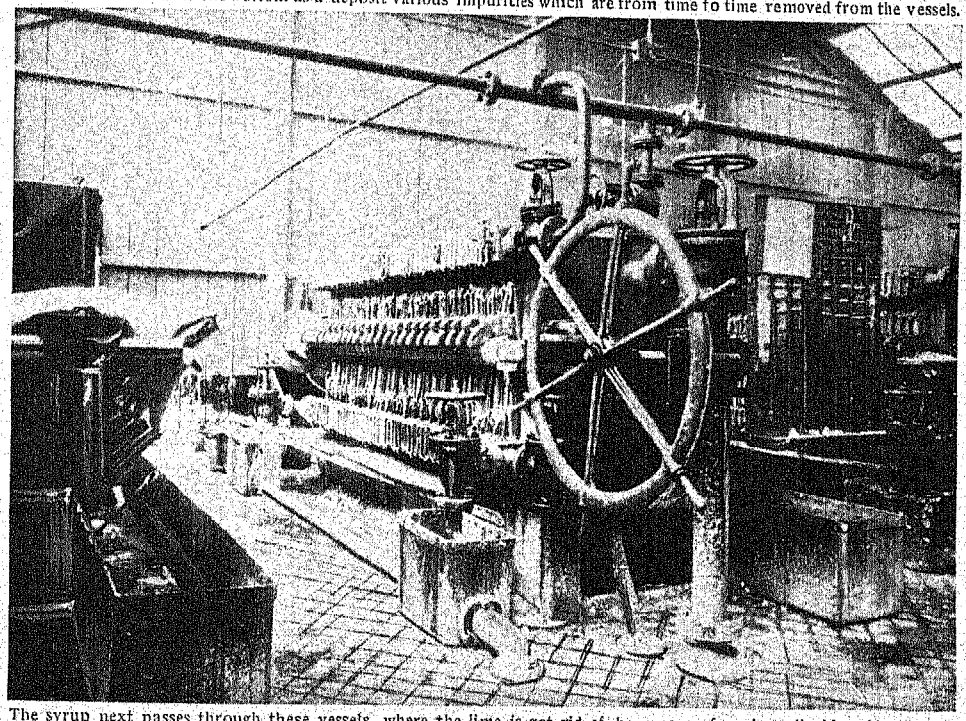


The pulp of the beet that is left after the sugar has been extracted is removed from the diffusers, squeezed dry in special machines, and sold as cattle food, thus lessening appreciably the net cost of sugar production. Here an endless conveyer is seen carrying the pulp from the factory and loading it into railway wagons.

FILTERING THE SYRUP TO FREE IT FROM CHALK

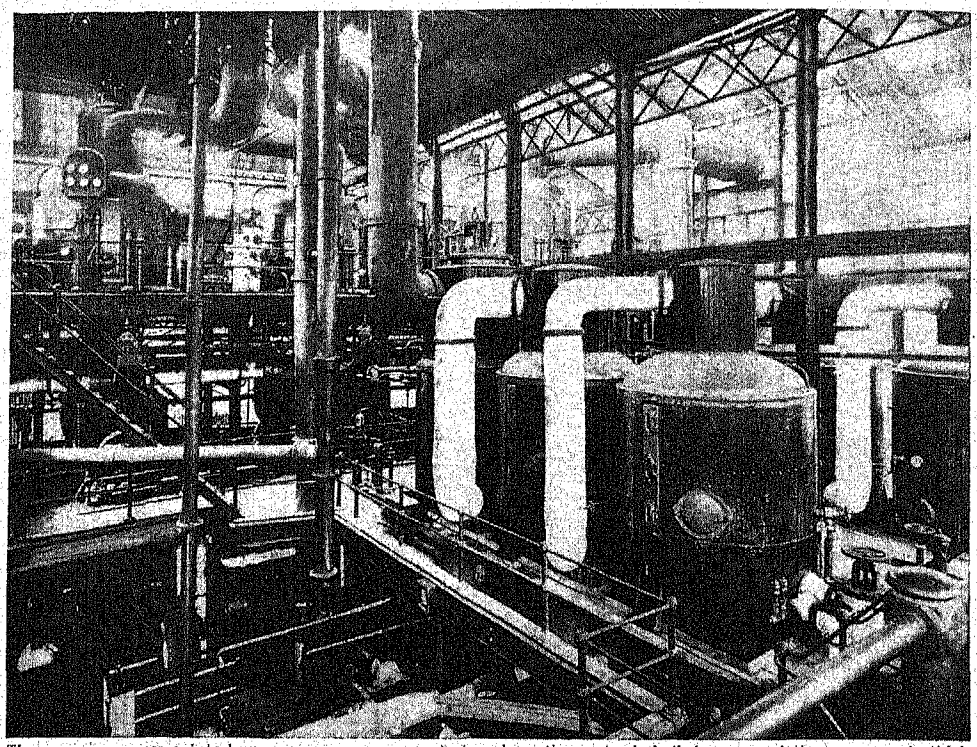


Here the syrup from the diffusers is being forced through a series of vessels containing lime, which neutralises the acids and sends to the bottom as a deposit various impurities which are from time to time removed from the vessels.

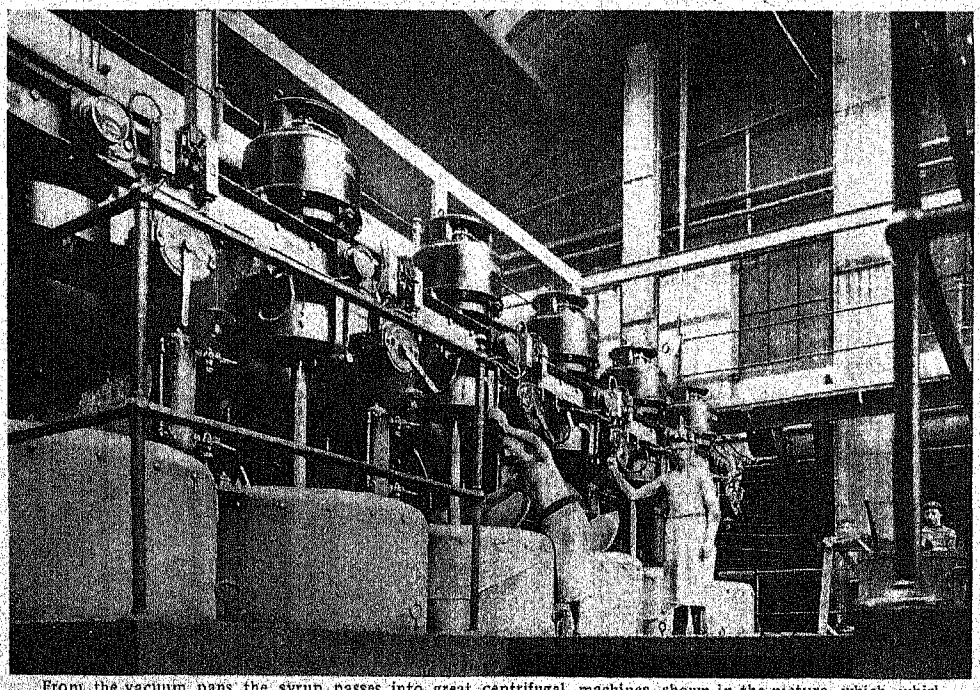


The syrup next passes through these vessels, where the lime is got rid of by means of carbon dioxide which forms with it a deposit of chalk. The syrup is freed of this by being passed through a number of filter presses containing layers of cloth, which arrest the chalk while allowing the syrup to pass through.

THE SYRUP IN THE VACUUM PANS

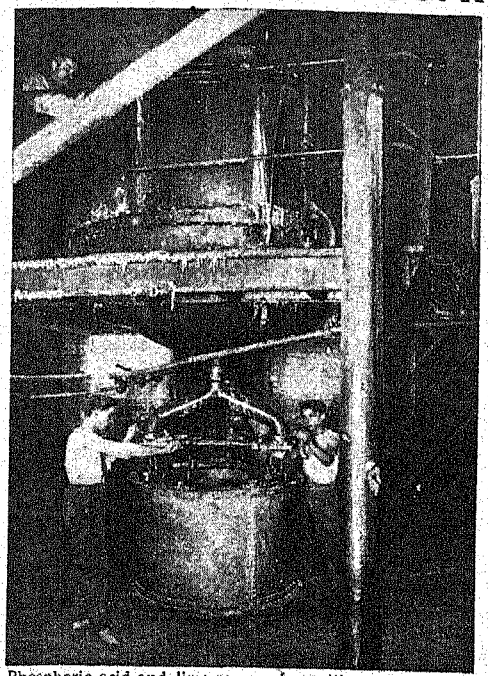


The syrup now passes into huge vacuum pans or retorts, where the water is boiled away and the syrup made thick enough to crystallise. The air is sucked through great pipes from the pans, and as water boils more rapidly in a vacuum than under air-pressure the water is rapidly driven from the syrup as steam.

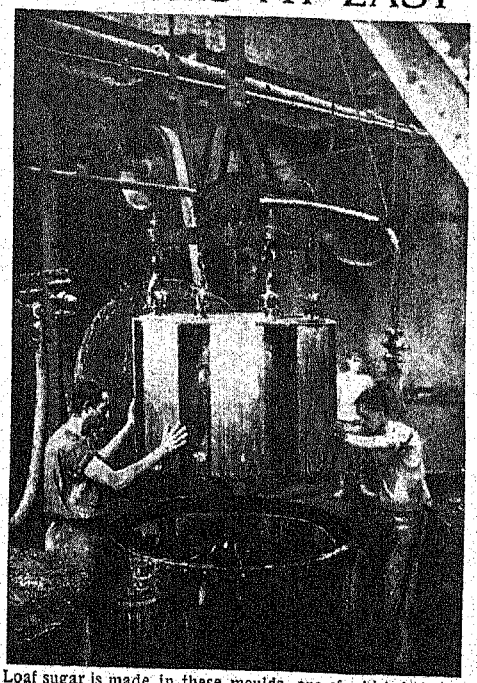


From the vacuum pans the syrup passes into great centrifugal machines, shown in the picture, which whirl round at the rate of 1000 or 1200 revolutions a minute. The molasses are thrown out and the sugar left purer.

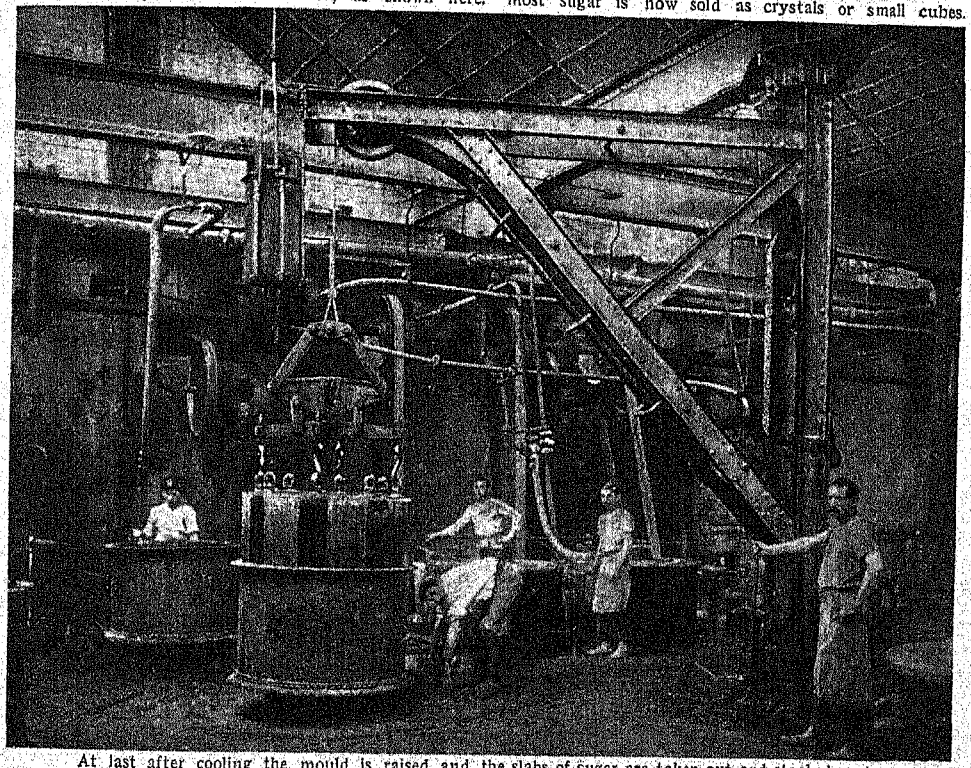
THE REFINED SUGAR APPEARS AT LAST



Phosphoric acid and lime remove impurities, and charcoal and ultra-marine make the sugar white. The sugar is then reheated and poured into a mould, as shown here.

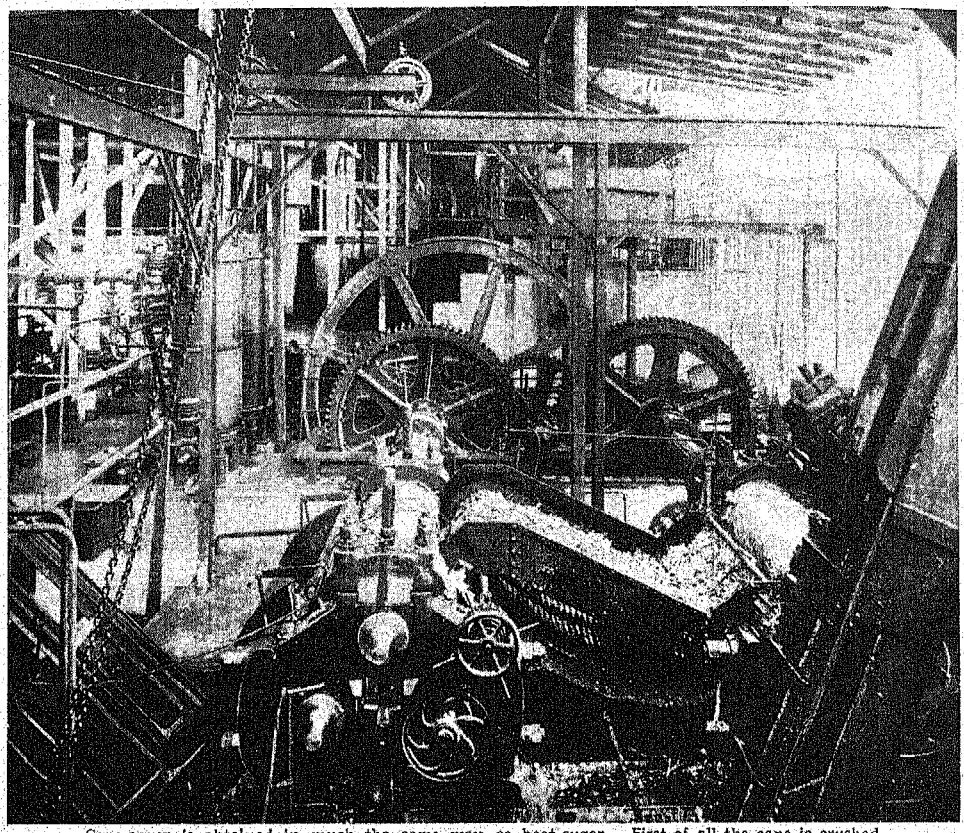


Loaf sugar is made in these moulds, one of which is being lowered into a turbine for the further removal of molasses. Most sugar is now sold as crystals or small cubes.

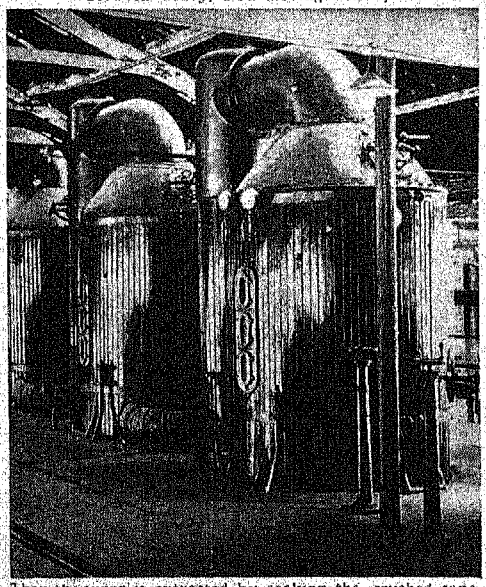


At last after cooling the mould is raised and the slabs of sugar are taken out and stacked ready for dispatch to the merchants. This picture shows the slabs being removed from the moulds.

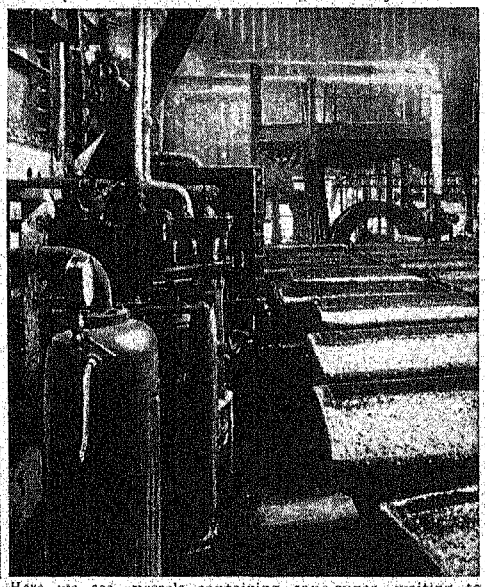
THE CANE IS CRUSHED BETWEEN ROLLERS



Cane-sugar is obtained in much the same way as beet-sugar. First of all the cane is crushed between heavy, slow-moving rollers, as shown in this picture of a West Indian sugar refinery.

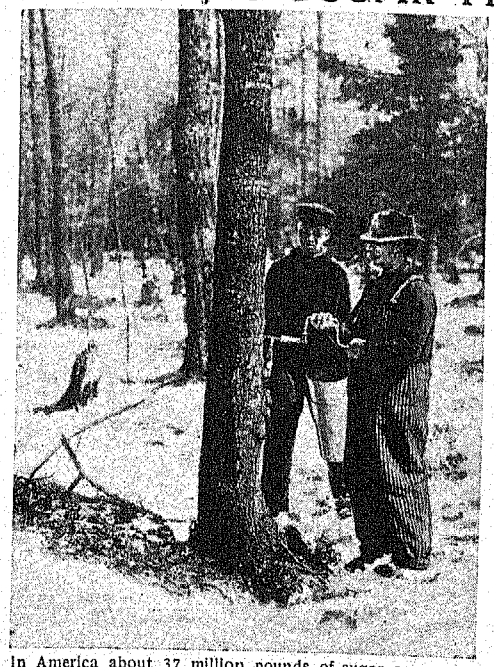


Then the sugar is extracted by soaking the crushed cane in large diffusers like those seen here. From these the syrup passes through various refining processes as in the case of beet-sugar manufacture.

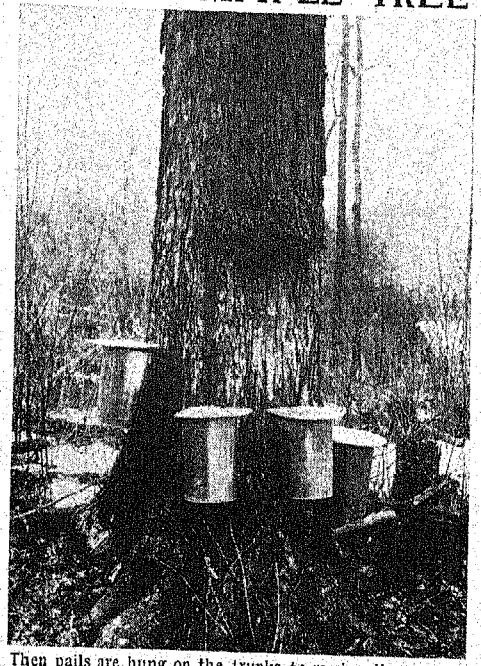


Here we see vessels containing cane-sugar waiting to be crystallised. When the Great War stopped beet sugar production in Europe cane-sugar production greatly increased in the West Indies and other countries.

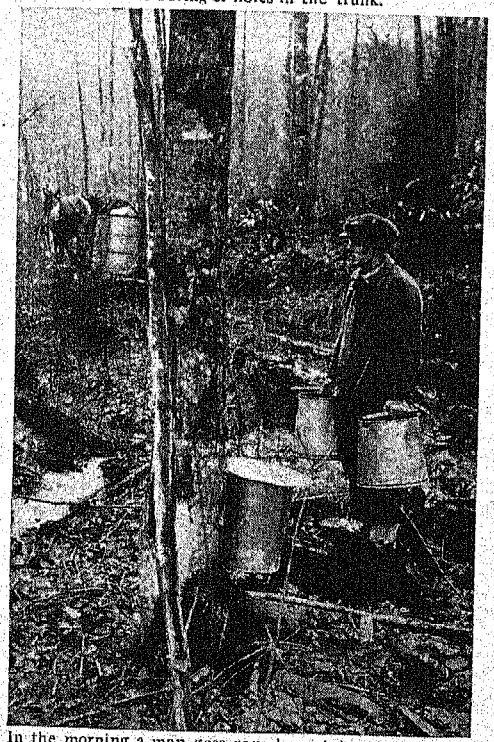
OBTAINING SUGAR FROM THE MAPLE TREE



In America about 37 million pounds of sugar a year are obtained from the sugar maple tree. The first operation is the boring of holes in the trunk.



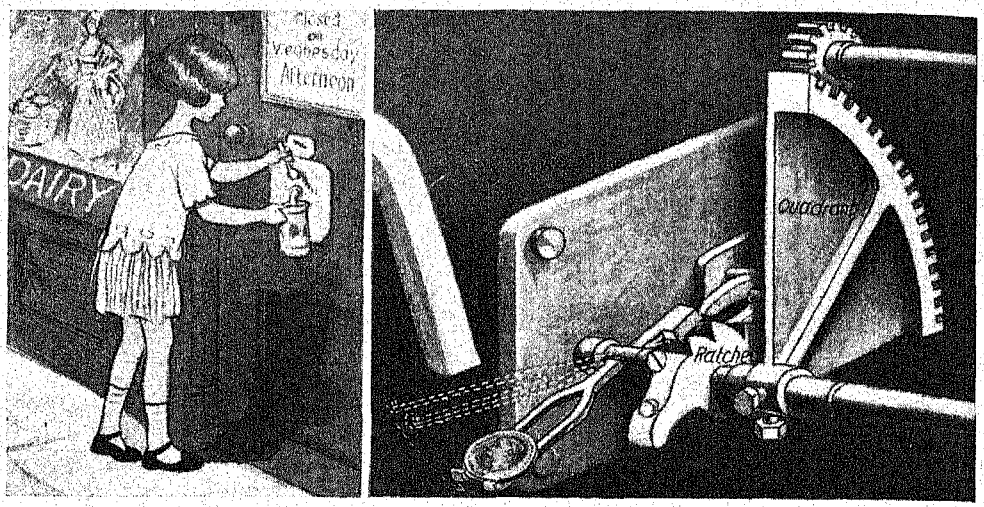
Then pails are hung on the trunks to receive the sap that oozes out, and these are left till next morning. Maples are tapped toward the end of winter.



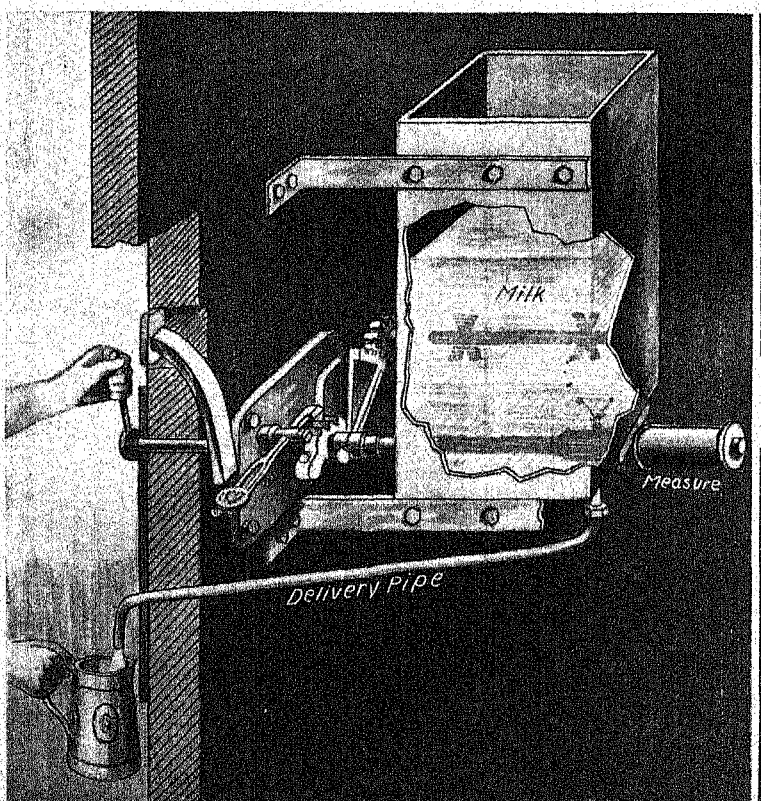
In the morning a man goes round emptying the pails and replacing them. From two to four holes are bored in each tree, but as soon as the tree begins to bud the sap ceases to come and sugar-collecting stops till next spring.

About twenty million maple trees are tapped in the United States each year and millions more in Canada. To transform the sap into sugar it is boiled in pans over a wood fire, the scum is removed and the sugar crystallises as it cools.

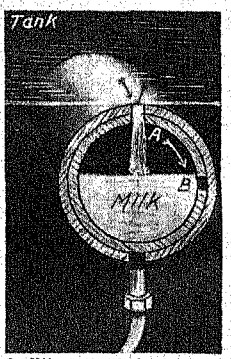
HOW THE AUTOMATIC MILK SUPPLY WORKS



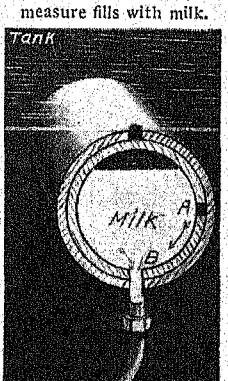
1. The girl having placed her penny in the slot, the coin runs down the shoot seen in the drawing on the right and falls on to a lever. The dotted lines show the normal position of the lever, but the weight of the penny depresses it, and in doing so the other end is released from a ratchet, where it had been forming a stop. The stop being removed, it is now possible for the girl to turn the handle, fixed to a rod attached to a quadrant. As the handle is turned the quadrant engages with a cog-wheel and causes small paddles to rotate within the tank, so mixing the cream with the milk.



2. With the same motion of the handle the inner drum of the measure turns round, filling with milk. The handle is then turned back to its original position and the inner drum of the measure moves to the position seen in picture 4. With the turning back of the handle the penny slides off the lever and drops into a box below, and the lever slips back and engages with the ratchet again so that no more milk can be obtained till another coin falls.

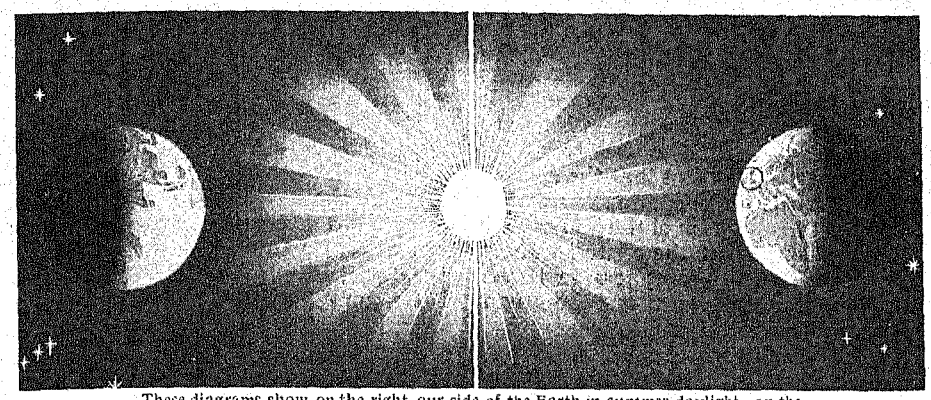


3. When the hole A in the inner drum meets the upper hole in the outer drum, the measure fills with milk.



4. The turning of the drum brings B opposite the lower hole in the outer drum, opening the delivery pipe, and closing the top hole.

Plain Answers to the Questions of the Children of the World



These diagrams show, on the right, our side of the Earth in summer daylight; on the left, the British Isles (marked with a circle) are in the darkness of a winter night.

WHAT IS A DAY?

A DAY is the period adopted by common consent as the standard unit for measuring time. All longer intervals, such as weeks, months, and years, are multiples of a day, and shorter intervals, such as hours, minutes, and seconds, are fractions of the day.

A day may be defined as the interval of time which elapses between the successive returns of the Sun to the same point in the heavens, but to determine or measure this period is by no means simple, and in any case the period of the Sun's reappearance at the same point is not always the same.

Another matter that has to be taken into consideration is the fact that the Sun is not a point of light like a star, but a disc of appreciable size, and different parts of the disc arrive at a given point in the heavens at different moments. The consequence is that when we speak of the Sun reaching a given point in the heavens the words have no definite meaning unless we specify exactly what point of the Sun's disc we mean. The point in question is the centre of the disc, and it is the successive returns of this point to a certain position in the heavens that must be observed to mark the passing of the day.

The centre of the Sun's disc, however, is not marked by a visible point so that it can be distinguished, and its transit cannot be directly observed. How, then, can we know the exact moment of its passing over the meridian, when it is at its highest point in the heavens? The difficulty is overcome in a simple way.

The Sun reaches the meridian when the centre of its disc touches the highest point of its passage across the heavens, and this is determined by an instrument called a Transit Circle, consisting of a telescope mounted on a fixed axis lying truly east and west. The telescope, when placed horizontally, will point exactly north and south, and it can be moved on its axis so as to sweep the whole celestial meridian: that is, the circle of the heavens passing through the point immediately over our head. Exactly across the field of view and in the centre, a thin wire is stretched to mark the meridian, and by noting the precise time when the edge of the Sun's disc touches this before it passes over, and noting also the time when the other side of the disc touches the line after the Sun has passed over, the middle interval can be calculated. That is the instant when the Sun's centre passed the meridian.

Three distinct days are recognized, and known as the Solar Day, the Sidereal Day, and the Civil Day. The Solar Day (called

also the Natural Day and the Astronomical Day) is the interval of time lapsing between two successive returns of the Sun to the same point. But this day is not the same length at all times of the year. It varies enough to render the solar day unsuitable as a unit of time. The variation is due to several causes, the chief causes being the tilt of the Earth ; the fact that the Earth's orbit is not a true circle, but an ellipse ; and the fact that the position of the Sun in that orbit is not exactly at the centre. These things cause the Sun to appear to travel across the heavens faster at one time than another, and so the length of the solar day varies. A clock which at one time of the year would agree with the passage of the Sun across the meridian would at another time be beforehand or behind—the clock would be fast or slow.

To get over the variation of the solar day and to secure a day always uniform in length, science substitutes for the real Sun a fictitious Sun whose daily journey across the sky is always the same. The period fixed for its passage is the *average* period of the real Sun's journey, and time as thus indicated is called Mean Time. The moment when its centre passes the meridian is called the Mean Noon, and the fictitious Sun itself is sometimes called the Mean Sun. The variable time indicated by the motion of the real Sun is called Apparent Time, and the moment when the real Sun reaches its highest point is called Apparent Noon.

The real Sun and the mean Sun are never very far apart, and four times a year they exactly coincide, so that mean and apparent times agree. When, as happens at certain seasons, apparent time precedes mean time, and the Sun passes the meridian before noon as shown on the clock, we say the Sun is fast. The intervals of time between the transits of the real and fictitious suns—that is between apparent noon and mean noon—is called the Equation of Time.

The day as determined by the passage of the fictitious Sun—that is, the mean or average solar day—has been recognised by law as the Civil Day, by which all legal and ordinary matters are regulated. It is recognised from midnight to midnight in the British Empire, the United States, and most of the countries of Europe. When it is reckoned from noon to noon by seamen, it is known as the Nautical Day, or the Astronomical Day.

A sidereal day is different from either of the days already described. It is reckoned by the passage of a star across the heavens.

The stars are, of course, enormous distances from the Earth and appear to us only as points of light. It has been found that if the transit of some star across the sky be observed for any number of nights, the interval between two transits is always and everywhere the same. The interval between two successive appearances of a star at any point in the heavens is called a Sidereal Day, sidereal coming from the Latin word for starry. The absolute uniformity of this star motion and the fact that it is observable from all parts of the Earth, would seem to render it a peculiarly useful means of measuring time, but it is not used for everyday life, because it is not marked by any conspicuous feature which can be easily noticed by all classes of people, such as the passage of the Sun's brilliant disc across the heavens.

It can be observed only by means of mathematical instruments, and is unnoticed by most of us. Therefore the Star Day is not suitable as a means of measuring time in ordinary affairs. It is a little shorter than the Solar Day—shorter by one-tenth of a second less than four minutes.

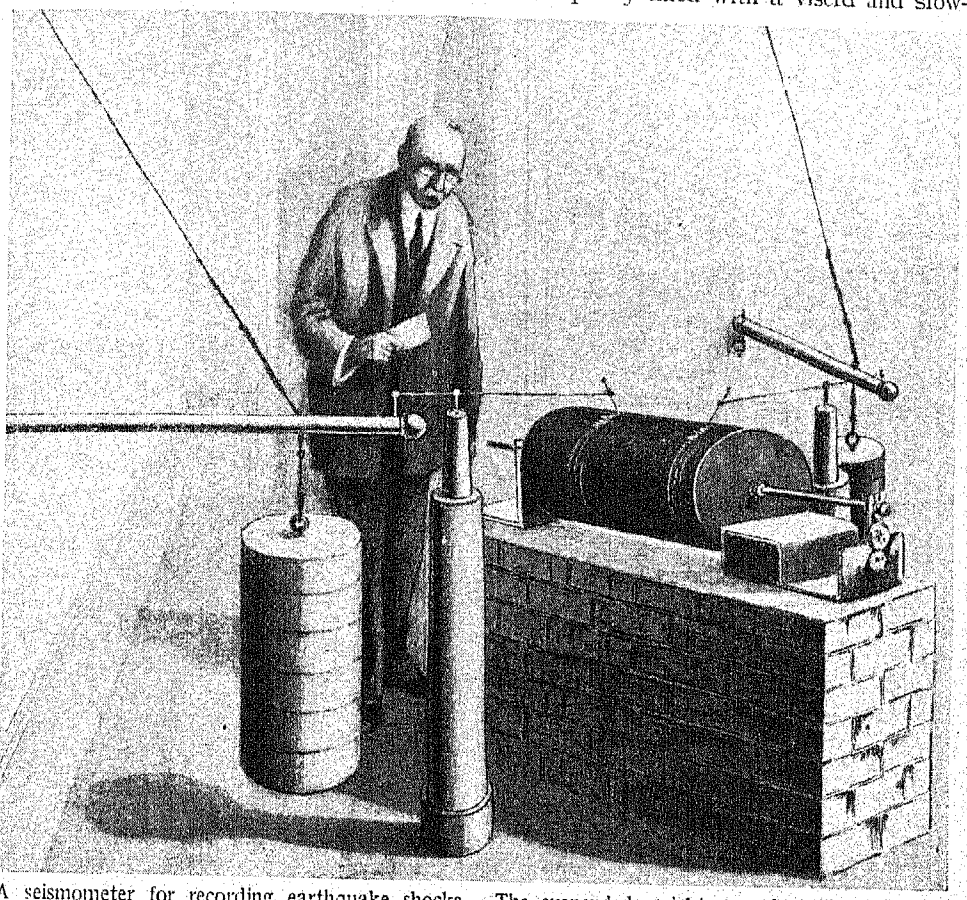
Why Do Two Sides of a Road Meet in the Distance?

Of course, we know the sides of the road do not meet, but they seem to meet. If an artist is showing a road going away from us in a picture, he must really draw the two sides of the road towards each other, so as to give the eye the same impression that a real road does. This is part of the study which artists call perspective—how things look when they are *seen through* which is what the word means.

Our eyes judge by the angle between things. Let us suppose that we use only one eye, to make it simpler ; then, if you look at two dots, you judge of the distance between them by the width of the angle between the two lines from them to your eye. Now suppose the same two dots, the same distance apart, were much farther away from the eye, the angle between the lines is much narrower, and so they seem much nearer together. If we imagine that the dots are taken on the sides of the road, at different distances along, then we shall see why the sides seem to meet in the distance. They do not really get nearer, but the *angular distance* between them gets smaller.

How Does an Earthquake Register Itself on a Machine?

Earthquakes in any part of the world are now recorded in scientific laboratories by means of an instrument called a seismometer, or seismograph, and the principle on which the instrument works is shown in the picture on this page. Two heavy masses are delicately suspended, and attached to them are pens touching a cylinder with a smoked surface.



A seismometer for recording earthquake shocks. The suspended weights remain still during the earthquake, while the smoked cylinder is shaken and the pens scratch zig-zag lines on the cylinder.

When an earthquake occurs in any part of the world the vibrations pass round the Earth's crust, and, reaching the place where the seismometer stands, the tremors shake the framework holding the cylinder, which responds and vibrates to and fro or up and down. The suspended masses, being very delicately balanced, do not respond to the Earth tremors so readily, and the pens therefore remain still while the cylinder trembles with the ground. The result is that the smoked surface, moving backwards and forwards under the pen-point, is scratched, and a wavy or zigzag line, more or less defined according to the intensity of the Earth tremor, is recorded on the cylinder. Two pen-points are used, each connected with a suspended weight, so that one may record horizontal tremors and the other vertical movements.

The oldest form of seismometer was a bowl partly filled with a viscid and slow-moving liquid like treacle. When the Earth tremor occurred, the liquid was thrown against the side of the bowl and left a visible record of the event. In more elaborate seismometers three pens are used, one recording vertical movements, one horizontal movements east and west, and the third horizontal movements north and south. The cylinder or sheet of smoked glass is made to revolve uniformly by means of clockwork.

Did the People of Long Ago live Longer Than the People of Today?

No. In all sorts of old records we are told that people lived to great ages; but there are many ways in which this can be explained, one being that there were different rules of reckoning age in those days. All the evidence shows that the average duration of human life is increasing. The expectation of life of the people who live in England now is definitely longer than it was ten years ago, and far longer than it was a hundred years ago.

If the Earth is Shrinking, shall we Ever be Toppled off?

No. When the Earth or anything else shrinks, the stuff in it gets no less; it is merely packed more closely. What keeps us on the Earth is its gravitation, and that depends on the stuff in it. The stuff is there, however much the Earth shrinks, and the force of gravitation at the surface, and therefore on us, will indeed be more powerful as the Earth shrinks, simply because this must mean that we get nearer to the great mass of it. There will be a limit, in any case, to the extent to which the Earth shrinks, as there is to the shrinking of other things. The more anything shrinks, the more resistance there is to its shrinking any more. When anything begins shrinking, we must imagine that there is plenty of room between its atoms, and, if it shrinks, they get nearer to each other; but soon there is less room between them, and the time will come when the force of the atoms squeezing against each other will resist the force that is making the thing shrink. When the two forces balance one another it will shrink no more. We see this at once if we watch a crowd gather; it goes on shrinking until elbows begin to press against elbows, and then it gets no smaller.

Where Does our Warmth Come From?

Our warmth is the result of the burning that goes on ceaselessly within our bodies. We do not realise how much this burning is, for we do not realise how much heat we are always losing from our bodies. If we lost no heat our bodies would become as hot as boiling water in a few hours. All this heat is made by the burning of our food. It burns, as other things burn, by combining with oxygen, and that is got into the body by our breathing. The chief part of the burning that produces our heat occurs in our muscles, and in the large gland—the largest in the body—called the liver.

We may think of the muscles as the fireplaces of the body, and the fuel burned there is mostly fat and sugar. A great deal of heat is produced when a muscle contracts, and that is why hard exercise makes us so hot; but even when the muscles are still this making of heat is always going on. The liver, too, is always active, and we know that the blood leaving the liver is hotter than the blood going to it.

Though all parts of the body do not produce equal warmth, they are all kept at about the same temperature by the circulation of the blood—which takes heat from the hottest places, such as the liver, and gives it to the coldest places, such as the fingers and toes.

What Makes the Pupil of Our Eye Grow Larger and Smaller?

If we think of a very small, but thick, rubber ring, we shall understand the answer to this question. The pupil is simply the hole inside this ring. The ring in our eye is not made of rubber, but it is elastic. It is made of muscular fibres that run round the pupil, and enclose it. The name of this ring is the iris. In front of the iris and behind it are layers of cells which contain colouring matter, and it is these that give our eyes their colour. When we look at anyone's eye we can see this coloured muscular ring and the black hole in the middle of it. When the muscular fibres contract the pupils grow very small. We can see this happen in anyone if we cover his eyes and then throw a strong light on them. In the darkness the iris relaxes and stretches, and then the pupil gets very large. The use of this beautiful arrangement is to regulate the amount of light falling into the eye. If we go into a dark room straight from the sunlight we can see nothing, but in a few moments things become visible. The reason is that our iris has relaxed, the pupil has become larger, and more light is allowed to enter the eye.

What is Tom Tiddler's Ground?

This occurs in one of Dickens's Christmas stories, and is said to be a contraction of "Tom t' Idler." In the game of Tom Tiddler one boy stands on a hillock or path, and has to bestir himself if he is to catch trespassers. If he fails to move quickly he is "Tom the Idler."

Will the Sun Ever be as Cold as the Earth?

Yes; this must happen. *To make something from nothing is an impossibility.* Every moment, without ceasing, the Sun is giving out enormous power in the shape of light, and heat, and other things. If the Sun were all the time getting from somewhere else as much power as it is giving out, then it need not cool down. Astronomers have very carefully studied this question. The Sun gets a certain amount of power from shooting-stars falling into it; it also probably gets a certain amount of power from radio-active substances in it; it also gets certain power from the light of the other stars. This is nothing, however, compared with the power the Sun is spending. The Sun must therefore cool down, and become, we have no doubt, like the countless thousands of cold stars or suns which we know exist in the spaces of sky.

What are our Finger-nails For?

Our nails are all that is left to us of certain things the lower animals have and make great use of—claws and hoofs. We live by our minds, not by things like claws—except when we lose our minds and go to war!—and as we have not sufficient use for claws they have grown smaller and weaker until we have nothing left but nails. Yet there is no doubt that they are really the same things as the claws the cat uses for fighting and climbing, and for tearing food; the hoofs the horse uses for walking on are another example of it. The ancestors of the horse had five fingers and toes, as we have, and a nail, or hoof, at the end of each; but all these except the middle ones have shrunk in the horse until in him we find only one that reaches the ground, and the remains of another on each side. The horse's hoofs are really the nails of its middle fingers and middle toes. They are made of the same material as our nails, and can be cut without pain.

Why is the Sea Never Still?

There are times when the sea is nearly still, though no doubt even when it looks like glass there are waves in it too small for us to see. But the sea is almost always moving; and it moves because the air above it is moving.

It is the wind that makes the waves. If there were no wind the sea would slowly swell up and fall again, owing to the tides made by the Moon; but it would do this very quietly, so that if you looked just for a moment you would notice nothing. But the waves are made by the wind. It is true that the sea may have great waves though there is no wind, but those waves were raised by the wind somewhere else, and they may have travelled hundreds of miles to reach our eyes.

Only a short distance below the surface the sea is quite quiet; there are no such things as waves "mountains high," and if you could see the water not many feet down, during the greatest storm that ever was, you would find it quite still.

What is it Like Above the Clouds?

When we go up above the clouds we find exactly what we expect. The air is very bright and clear, and the Sun—or the stars, if it is night—are seen distinctly. Both sides of a cloud are very much the same, and when we look down on the clouds from above they appear as bright clouds appear from below.

Some flying men have risen to great heights above dense fogs and looking down on the fog have seen it as a quite bright thing, as a great deal of the sunlight which should have been pouring down on London was stopped by it, and reflected back from its surface to their eyes. When there is no fog, but only clouds scattered about, and men go up above them, they get glimpses of the Earth between them as they look down; and those who have seen this say it is a wonderful sight. Of course, they do not see the Earth spinning underneath them, because the atmosphere spins round with the Earth, and the aeroplane spins round with the atmosphere.

How Does a Bird Know How to Build its Nest?

It is by the power of what we call instinct. Human beings have very little instinct; we have to learn for ourselves almost everything we do. The instinct of animals, however, shown in the spider's web or the bird's nest, is quite different. There is no learning at all. Many animals have to do a most difficult thing only once in their whole lives, and after doing it they die; and we know for certain that they have never seen any other animal do it. They have never learned, they have never practised, yet they do it perfectly. That is the power of instinct; but the weakness of it is that it can only do what it is made to do, and it is for this reason that intelligence is so greatly superior to the best instinct.

What Makes the Water Ripple When we Throw a Stone into it?

It is one of the great laws of Nature that when anything is at rest it stays at rest until something moves it; and when anything is started moving it will go on moving till something stops it. If nothing stopped it it would go on moving for ever. This applies to the stone and to the wave the stone makes when it strikes the water. When a stone strikes water, or when a sound is made in the air at any point, or when a light is made, a wave motion is started which travels out in all directions, and will go on travelling until something stops it. One of the things which stops it in the case of a water wave is friction, which simply means rubbing, as the parts of the water push against each other. Then it is quite natural that, as the wave gets bigger and wider, it spreads out its power over more space, and so the waves are not so high when they reach the bank as when they were started.

How is Power Carried to a Distance?

There are various ways of transmitting power to a distance. One method is by means of steam generated in a boiler and passed to an engine some distance away, where it either turns a turbine or drives a piston. A second method is by direct mechanical means, as when a belt passing over a revolving wheel or pulley conveys the motion to another pulley some distance away over which the belt also passes. A third method is by electricity, the power being carried as current, sometimes for great distances. A fourth method is by compressed air, as in the tools which are used for cutting coal, drilling rock, or driving home rivets in boilers and ships. A fifth method is hydraulic transmission, as when continuous pressure on a column of water in a pipe will raise a lift or work a press. The newest of all methods is that known as wave transmission, a series of waves in a pipe of water which travel through the pipe, and by their pressure convey power to the other end.

Why Cannot we Breathe Under Water?

As we know, there is air dissolved in water, and it is this fact that enables creatures to exist under the water. A fish has a special part of its body made for the purpose of getting the air out of the water. The water is taken in by the fish, and allowed to flow along very close to the blood-vessels in what are called the gills. As the water flows past these blood-vessels, it gives up to them part of its oxygen, and takes from them their carbon dioxide. But we have no gills. Our lungs are adapted for breathing air only, and we die of suffocation in water. Besides, our needs of air are much greater than those of a fish, and even if our lungs were capable of getting the air out of water that might be inhaled into them there would not be enough to keep us alive.

What Makes the Firelight Dance?

If coal were a simple thing, such as pure carbon, and if it were evenly supplied with a steady draught of air, the firelight would not dance, but would be quite steady. It dances as it does because the processes of burning go on so irregularly. For one thing the supply of air is not quite constant, for the draught up the chimney is affected by the movements of the wind at the top of the chimney.

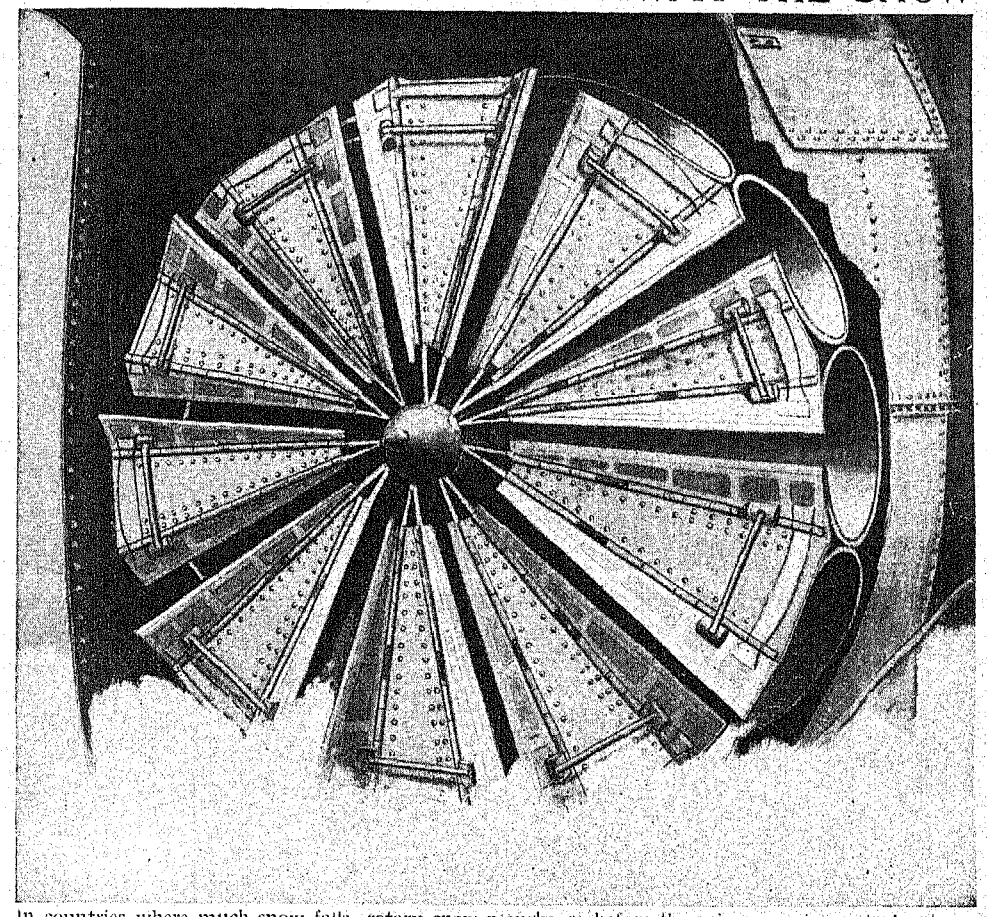
But that is not all. Imprisoned in coal is a great quantity of gases of various kinds, all of which can be burned. As the coal breaks up these gases escape, and it is when they burn that they make the beautiful flames of various colours which flicker and throw a dancing light into the dark corners of the room.

If we burn coal from which the coal-gas has been removed—coke, as we call it—we get a very hot fire with very little flame, because we are practically burning nothing but solid carbon. In an ordinary fire a certain amount of the gases and a great deal of the carbon itself go up the chimney unburned, which is, of course, a great waste, to say nothing more. That is part of the price we have to pay for our cheerful open fires.

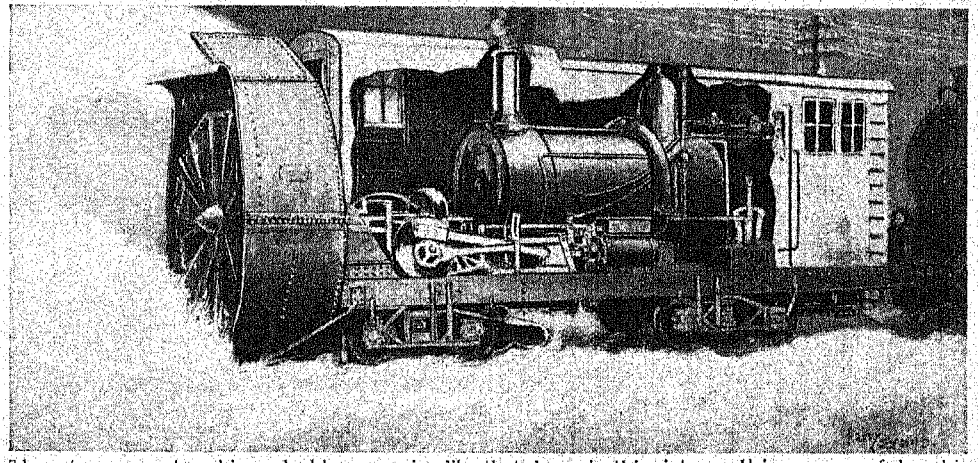
Does the Equator Go Round Faster Than the Poles?

Any point on the Equator must move faster than a point on or near either of the Poles, because the Earth spins on an axis running through the Poles as a ball might spin on a knitting needle thrust through its centre. We can think of the knitting needle as running through the ball from pole to pole. The Earthly ball spins round once in 24 hours. Near one of the Poles, say within a mile of it, a point would have to travel less than four miles in the day. But on the Equator, which is more than 24,000 miles round, a point would travel a thousand miles an hour.

HOW THE ENGINE CLEARS AWAY THE SNOW



In countries where much snow falls, rotary snow ploughs go before the railway engines. In front is a revolving wheel fitted with curiously-shaped shovels, or scoops, and these have hinged knives to cut the snow. The revolving shovels then hurl the snow to the side of the track.



The rotary snow-shovel is worked by an engine like that shown in this picture. It is very powerful, and is completely housed in by a covering to protect it and the men working it from the weather. The artist has removed some of the covering to show the engine.

What Makes Some People Dumb?

As a rule the cause of dumbness has nothing to do with the vocal cords at all, which are generally present and apparently normal, but for some reason or other in people who are dumb the vocal cords cannot be used. That is to say, although the brain may produce an idea, and the person may wish to speak, something has happened which prevents the message being sent from the brain to the vocal cords, and so there is no speech. So that we may say that any disease or injury which destroys that part of the brain called the Speech Centre, or any disease or injury to the nerve fibres which pass from the speech centre to the vocal cords, will cause dumbness. Dumbness is sometimes present from birth, owing to some defect in develpment; at other times it comes on in after life. Sometimes it is permanent, at other times it lasts only for a short period.

Why is Yawning Infectious?

A yawn is a very deep breath. It depends as a rule on the fact that, from one cause or another, our breathing has fallen below what is needed, and the yawn is an attempt to make it up. Now, it is a very well known fact that one human being can affect another by what is called suggestion. One person sees another afraid, and he becomes afraid; if everyone around us is laughing and happy, we begin to laugh and feel happy; or if they are all miserable we get miserable, too. Suggestion is the more powerful, too, the nearer the suggested thing is to the needs of life; that is why the suggestion of fear is so powerful. And so yawning is more powerfully conveyed by suggestion—infectious, as we say—than almost anything else, because it happens to deal with the most urgent need of all life, which is to breathe. Generally, however, people are only infected with the desire to yawn when they themselves are tired or exhausted.

Is There any Water Anywhere Except in Our World?

Oxygen and hydrogen, which form water, are found wherever we look for them through the universe. In the case of our own Solar System we can prove that, wherever the temperature is not too high, oxygen and hydrogen if found together will combine to form water. That is true of our own Earth; but the Sun's temperature is too high for it to be true of the Sun. We should expect some of the other planets to be cool enough for water to be formed, and in the case of the planet we know best, which is Mars, this appears to be so, though the whole question of what the white patches on Mars are is not finally settled.

What is an Invisible Pilot?

The invisible pilot is the name given to a clever device which enables a ship to guide itself in and out of harbours without a human pilot. A single cable is laid on the sea-bottom, and held in position by anchors and weights An alternating electric current is passed along the cable, and a ship has only to be fitted with two wire coils, one on each side of the ship near the water-line, with telephones attached, to pick up the signals from the cable. By comparing the strength of the signals heard in each telephone the navigator can tell when his ship is over the cable, for when the strength of both signals sounds equal the ship is exactly over it. The captain has then only to steer so that the sounds keep equally strong to follow the route of the cable safely into harbour. He is thus unaffected by fogs. New York was the first great port to instal the invisible pilot in its harbour.

Does the Sun Never Shine in the North?

The Sun does sometimes shine in the north; it depends on the place from which we are looking at it. It is the northern half of the world that most of us live in, and it is the northern half of the world that has made the records of civilisation. Thus the Sun has always been known to shine in the south.

Ages ago, when men voyaged south of the equator and rounded Africa, they found the Sun shining in the north. This was ridiculed when they came home, but we now recognise that this account of what those travellers saw is good evidence that they did what they said they had done.

Whatever part of the world we are in, the Sun rises in the east and sets in the west, because the whole Earth is spinning in the same direction, and it is that spin which makes the Sun appear to rise and set. But if we are looking at the Sun from the northern half of the planet it appears to travel across the sky in the south; while if we look at it from the southern part of our planet it seems to travel across the sky in the north.

Why Does a Trumpet make the Gramophone Louder?

Why does a sounding-board over a pulpit make the preacher's voice louder? Why does opening the lid of a piano make the sound louder? Why does a singer's voice sound louder when he keeps his tongue low in his mouth? In all these cases we see the same principle at work.

What happens is that the sound is reflected in the direction we wish. When a sound is made anywhere, the law is that the waves spread equally in all directions at the same speed and with the same power. But sound can be reflected exactly like light, and if we desire it to be heard specially well at any point we must reflect it towards that point. We cannot make the sound louder than it is, but we can get more of it to reach the place that we desire it to reach.

We may put a trumpet on the gramophone, or we may use a speaking-trumpet for our own voices. Or, on the other hand, we may put the trumpet in our ears, where it acts in the same way, reflecting towards the canal of the ear a certain amount of sound which would not otherwise have reached it. Our own ears act as reflectors of this kind in a smaller degree.

The making of echoes by walls is really the same as the action of a trumpet; only when the wall is far away the reflected sound comes so long after the first sound that we hear two sounds. Walls help a speaker if they are close by him, but not otherwise.

If Our Skin is Waterproof How Does Moisture Penetrate it?

The skin is truly waterproof, and will let nothing from outside get into it. Bu the skin is almost everywhere pierced by tiny tubes that run out through the waterproof layer to the surface, from the true skin that lies underneath it. These tubes carry the sweat made by the little glands in the true skin, from which the tubes run. Water could, perhaps, get into these tubes, so that the skin would not be waterproof, if it were not that the sweat is coming out of them. As it does so it has a forward pressure which forces back anything that might enter. And even if anything did enter it could not get far, for it would find itself in an exceedingly tiny blind alley—the inside of the sweat-gland. If we rub anything into the skin very hard, and if it is something, such as cod-liver oil, which the sweat-glands are willing to take up into themselves and give to the blood, we can succeed in making it pass inwards through the skin. Also, by means of electricity, we can make liquid things pass in through the skin. But otherwise it is truly waterproof—in one direction.

What is the Difference Between Fat and Oil?

Oil is a misleading word, for it is used in two senses. We describe as oil the things that give plants their smell, such as turpentine, but they are quite different from other oils, and we should always call them *volatile oils*, which means flying oils, because they readily fly into the air in the form of a gas. If you put a drop of such an oil on a piece of paper it soon disappears; but if you put a drop of any of the other kind of oils, such as melted butter, on a piece of paper, it makes a mark which stays. So these oils are called *fixed oils*, and the simple thing to remember is that fixed oils and fats are really the same thing. When it is solid we call it fat; when it is liquid we call it oil. A fixed oil is melted fat, and fat is a fixed oil that has turned solid. Every fat has a melting-point, as we call it, when it is so warm that it melts and turns into oil; or we might say that every fixed oil has a freezing-point, when it is so cool that it solidifies and turns into fat.

It is a very interesting thing about the fat of our bodies that its melting-point is just the temperature of the blood. So the fat of our bodies is always just at a point where it is neither quite solid nor quite liquid; and this is the state of it that suits us best. If it were quite solid the blood could not easily help itself to it as it was needed; and if it were quite liquid it would not stay in one place. There are hundreds of different fats and oils and mixtures of them, and they all have their own melting-point, above which they are liquid oils, and below which they are solid fats.

How Many Stars Do we See?

Most people imagine they see countless myriads of stars in the sky, but the whole number of the stars that can be distinguished by the naked eye is probably only about ten thousand. But seldom are more than a third of this number visible at the same time, so that the number actually seen is between three and four thousand, say about 3500.

Will the World's Food Supply Ever Run Short?

It is quite certain that, as people cannot live without enough food, there never will be more people than there is food for. The struggle for life is, in the first place, a struggle for food, and for a large number of people all over the world the struggle is so severe that many babies and children are killed by it every year, directly or indirectly.

But the number of people in the world steadily increases, and doubtless always has increased since mankind came to be; and steadily the amount of food has been increased by human effort. Men learned how to tame and care for sheep and oxen and goats, and so obtained flesh and milk; and this pastoral stage—pastoral comes from the word pastor, which means a shepherd—yielded to the agricultural stage of growing crops, which supports far more human life than the pastoral stage alone can.

It is probable that some day there must be a limit, though we are nowhere near it yet. When freed from the insects which carry disease and stand in the way of man, Africa alone will be capable of holding and feeding five hundred million people more than it does now; and as for Australia, who can say or who will dare to prophesy?

Where Does the Oxygen in the Sun Come From?

It is rather difficult to understand, but we must remember that a thing may be intensely hot and glowing and flaming without any burning, combustion, or combining with oxygen going on. The thread inside an ordinary electric lamp is an instance of this. Now, long ago, astronomers thought that the Sun's heat and flames were due to burning going on in the Sun, as it goes on in a fire on the Earth; but then they came to ask themselves practically just the question we are asking: "If the Sun's heat and light are due to combustion, where does all the oxygen come from, and where does all the fuel come from?" If the Sun were burning as a fire is burning, it would have burned itself out millions of years ago. There is nothing like enough material in the Sun to account for all the light and heat it produces. Therefore, burning as we understand it, which is combustion, or combining with oxygen, has little to do with the Sun's heat and light. The Sun's supply of light and heat is kept up in other ways; partly by its ceaseless shrinking; partly, we suppose, by the breaking up of the atoms of elements in the Sun; and chiefly by the incandescence of carbon and calcium.

Why is the End of an Anvil Tapered?

The tapered end of the anvil, which is called the beak because it resembles a bird's beak, is to enable the blacksmith to shape curved articles of iron, such as a horse-shoe. These are beaten out round the gradually narrowing beak. In earlier days the anvil had a beak at each end, and as this gave the appearance of a pair of horns on the head of an ox the anvil was called a bickern, a word which means two-horned. An anvil with one beak is sometimes spoken of as a bickern, but this is incorrect.

Why has Water no Taste?

It is true that pure water has no taste, but probably not one in ten thousand of those who read this question has ever known water that had no taste. None of us has ever tasted pure water unless we have been to the chemist's and tasted water that has been distilled. The ordinary water we drink has quantities of air dissolved in it, and these give it a taste. It also has a certain amount of salts dissolved in it. If we boil water we drive off the gases in it, and then it does become tasteless and flat. That is the reason why one of the many ways in which to spoil a cup of tea is to let the water *go on* boiling before we make the tea. Why pure water should have no taste is very plain. Our bodies mainly consist of water. The nerves of taste, and their endings in the tongue, mostly consist of water themselves, and they live in water. Therefore we should not expect water to be one of the things that excites them. If it were, we should be tasting it all the time. There would be no use or meaning in this, and all our senses exist for use. Their business is to tell us of new things happening, not of things always there. So water has no taste, and air has no smell.

Can an Aeroplane Stand Still in the Air?

An aeroplane can never stand still in relation to the air, the slowest rate at which it can fly being about half its top speed. When travelling against a very strong wind, however, it is possible that it may stand still in relation to the Earth.

FAMOUS SCULPTURES OF THE WORLD

PEACE FLYING OVER LONDON WITH WINGS AND HORSES—THE FAMOUS QUADRIGA NEAR HYDE PARK CORNER, BY ADRIAN JONES

A MODEL FOR A BRONZE GROUP FOR AUSTRALIA HOUSE, LONDON—BY SIR BERTRAM MACKENNAL

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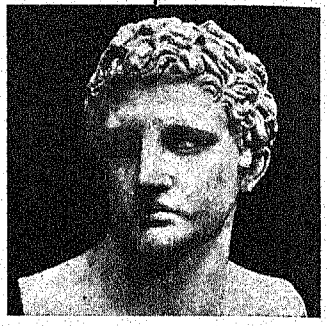
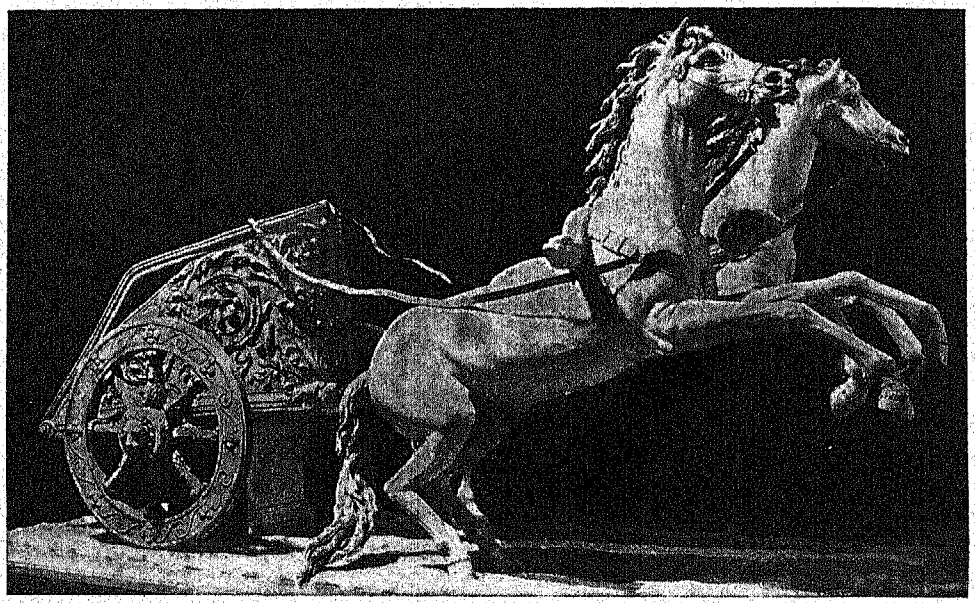
THE HEAD OF MELEAGER IN THE VATICAN

A ROMAN BUST OF ANTINOUS



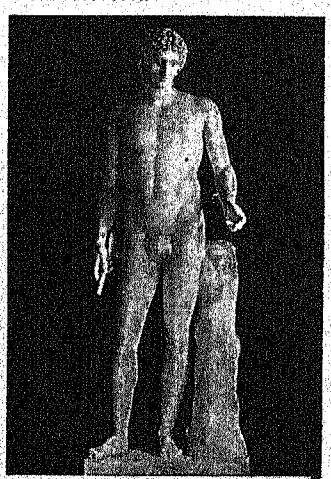
THE CARLISLE MELEAGER IN THE BRITISH MUSEUM



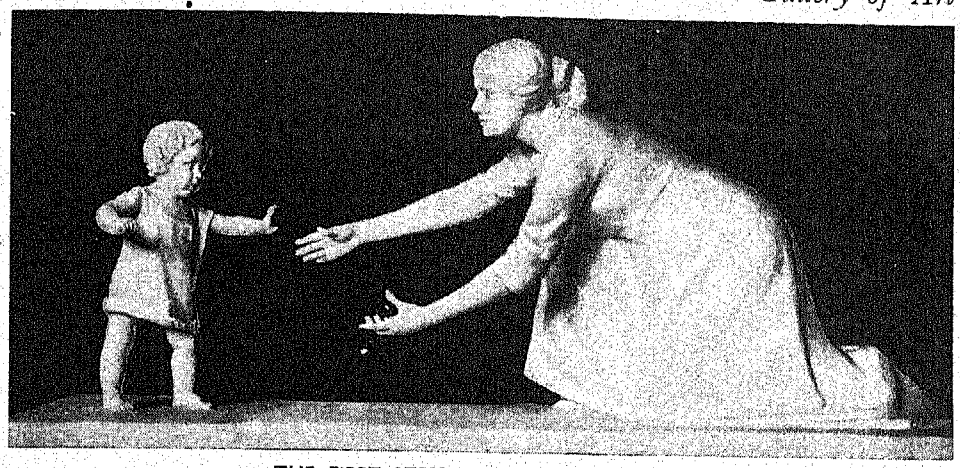
A CHARIOT DRAWN BY PRANCING HORSES, IN THE VATICAN

THE FISHERGIRL, BY ALEXANDRE MATHURIN PECHE

AVIATION, BY RENE BERTRAND-BOUTÉE

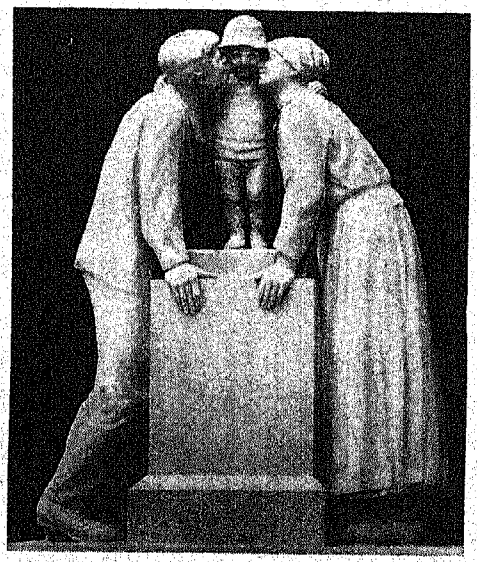


AN ANCIENT STATUE OF APOLLO



THE FIRST STEPS, BY GERTRUDE BRICARD

THOUGHTS OF THE PAST
BY RENÉ BERTRAND-BOUTÉE

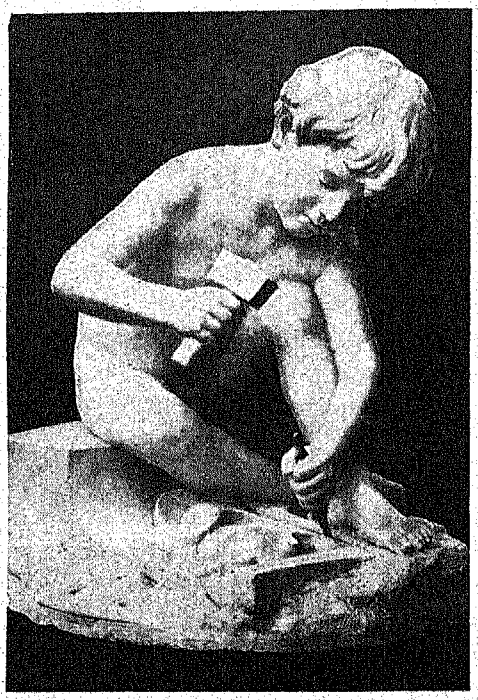


THE FOND PARENTS, FROM THE MONUMENT
CHILDHOOD, BY LUCIEN ALLIOT

GRANDMOTHER
BY LUCIEN ALLIOT

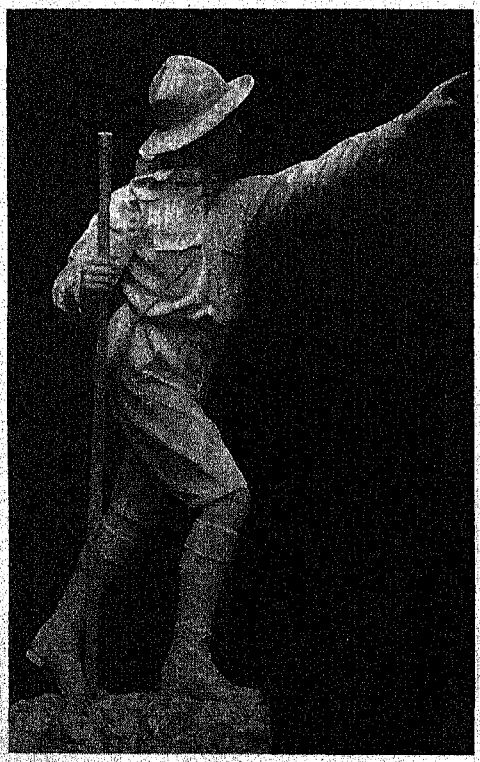
GRANDFATHER
BY ALBERT LEFEUVRE

GRANDFATHER
BY LUCIEN ALLIOT

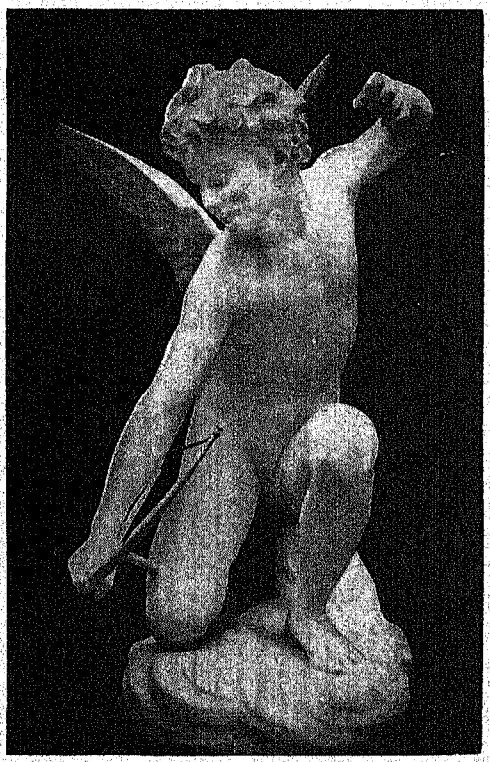


THE YOUNG MASON, BY THÉOPHILE F. SOMME

THE BOY AND THE SNAIL, BY CHARLES GIROMELLA



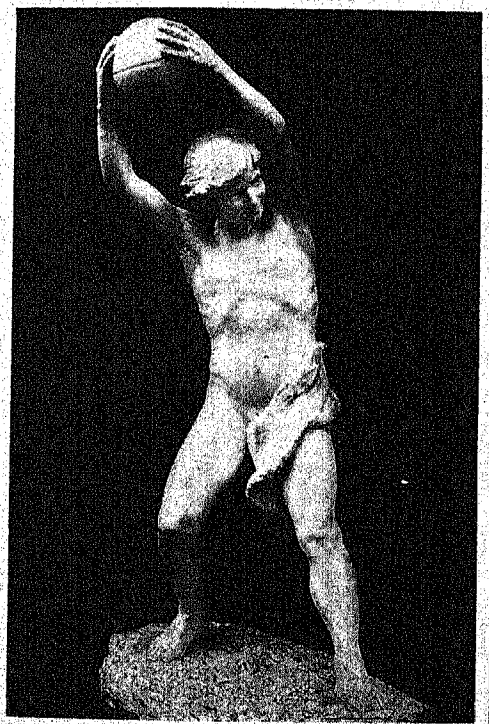
A FRENCH BOY SCOUT, BY MARIUS RÉMONDOT



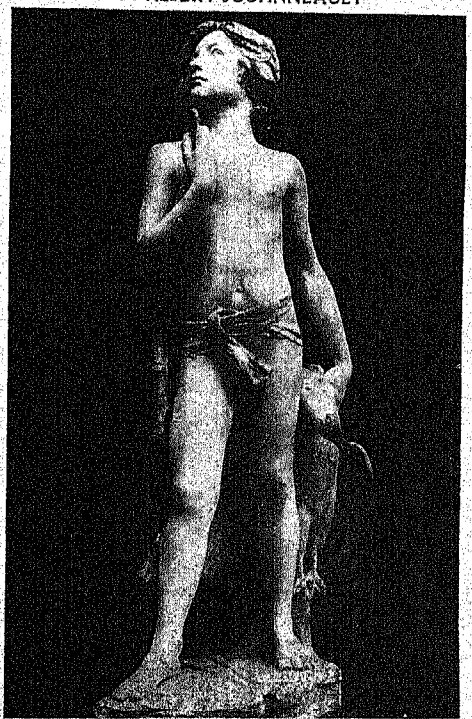
CUPID, BY LAURENT MARQUESTE

THE CHILD WITH THE DOLL
BY LOUIS D'AMBROSIO

THE CHILD AND THE KITTEN
BY ALBERT JOUANNEAULT



THE YOUNG FOOTBALL PLAYER
BY CLÉMENTINE DISSARD

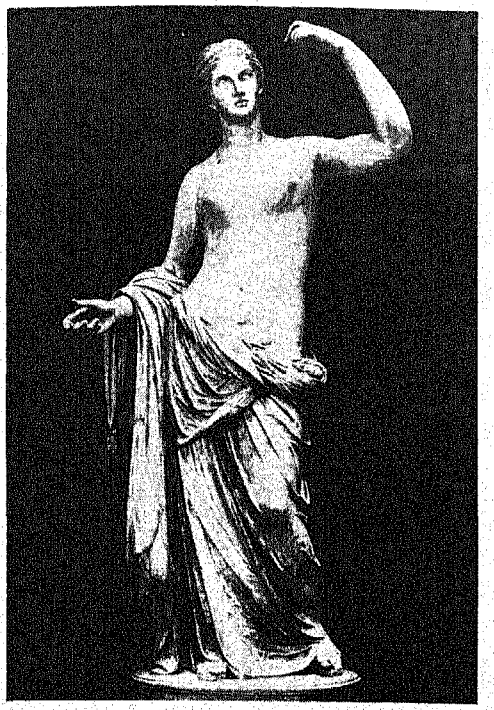


A BOY OF GAUL
BY ANTONIN CARLÈS

FIGURES OF A HUSBAND AND WIFE ON A ROMAN MEMORIAL

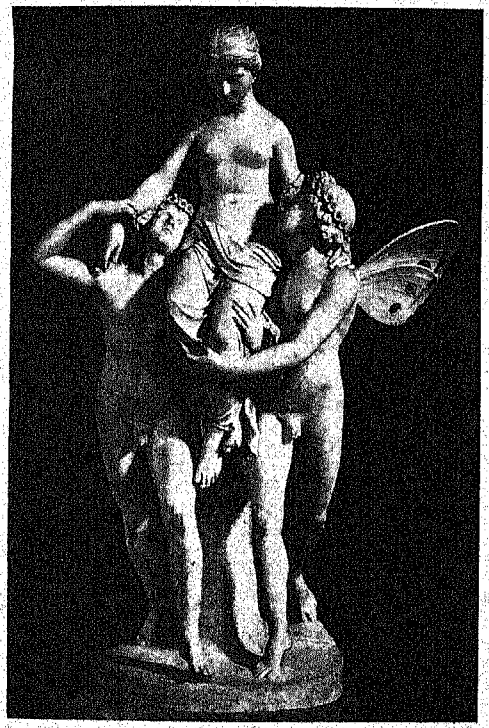
AN ANCIENT SCULPTURE OF JUNO AS THE QUEEN OF HEAVEN

A ROMAN STATUE IN HONOUR OF AUGUSTUS

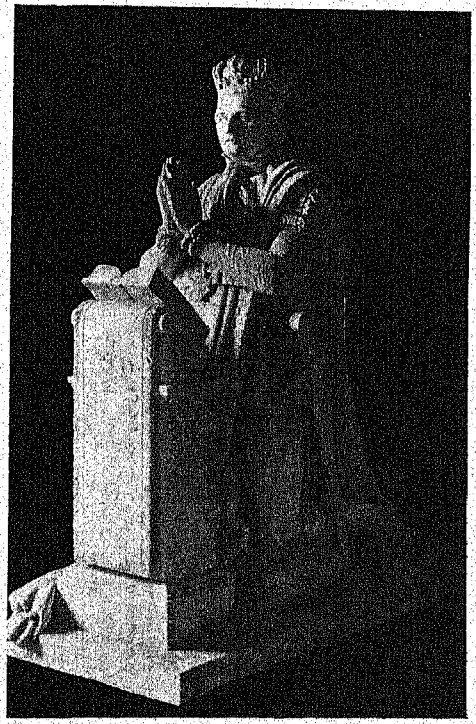


THE TOWNELEY VENUS. A STATUE OF THE FIRST OR SECOND CENTURY, B.C.

AN ANCIENT STATUE OF ALEXANDER THE GREAT, NOW IN ROME



PSYCHE SUPPORTED BY TWO ZEPHYRS BY JOHN GIBSON

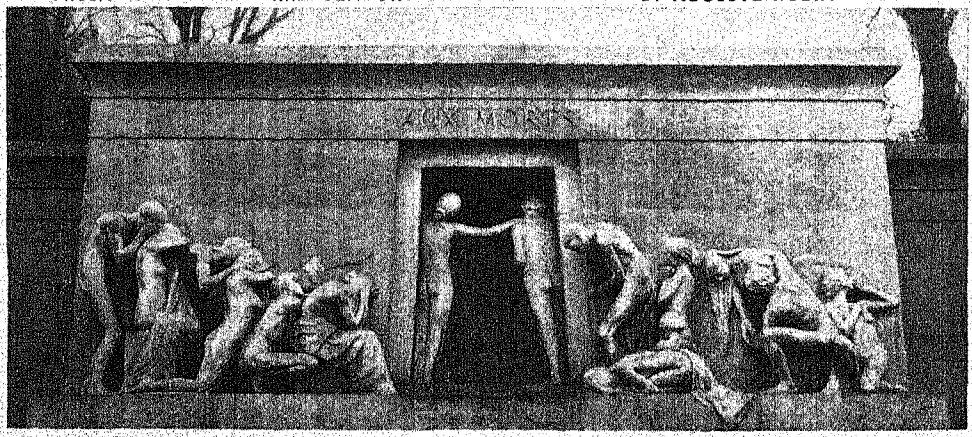


THE STATUE OF LOUIS THE SIXTEENTH IN THE MONASTERY OF ST. DENIS

THE MEMORIAL TO MARGARET MACDONALD IN LINCOLN'S INN FIELDS, LONDON
BY RICHARD R. GOULDEN

A ROMAN STATUE IN BRONZE OF VICTORY
PROBABLY OF THE THIRD CENTURY

THE AGE OF BRONZE
BY AUGUSTE RODIN



THE WONDERFUL TOMB OF DEATH IN PERE-LACHAISE CEMETERY, PARIS
BY PAUL ALBERT BARTHOLOMÉ

The pictures on these pages are reproduced by courtesy of Messrs. Alinari, Anderson, Bonnaire, Lapina, Neurdein, and others

The Pool of London through which much of the world's wealth passes
From the painting by W. L. Wyllie

HOW WEALTH IS CREATED

MAN is by no means the strongest of the animals, and with nothing but his own muscles to help him he can do little or nothing to resist the onslaught of a lion, a tiger, a bear, or a gorilla.

Fortunately, however, his muscles are directed by a wonderful brain, which enables him to contrive a thousand devices to conquer Nature.

Labour is the first source of the wealth we are studying, but it is important to see that Labour, to be effective, must be intelligent and informed by invention.

It is not the *amount* of labour we do which creates wealth, but its *effectiveness*. As we have reminded ourselves, man is a small creature much weaker than many of the higher animals. It is a common error to speak of labour as a source of wealth, as if any amount of hard work could create an abundance of commodities. The truth is that wealth increases, not through *making* work, but through *saving* work.

As long as man worked with his own hands, or with the aid of a few simple tools and weapons, he spent nearly the whole of his life in obtaining a scanty supply of food. No matter how rich the territory he inhabited, he could not become wealthy or enjoy much of comfort or culture. A very striking illustration of this is to be found in the case of the rich country we call the United States of America, which now supports over a hundred million people. Not very long ago in the world's history this same territory, with all its wonderful wealth of rich prairie land, timber, fine rivers, natural ports, and magnificent stores of animals, was the home of a small number of savages, who hunted for a scanty living, and failed to multiply because they knew not how to use the natural gifts about them. The little wealth they had was the result of the failure of hard, unintelligent work to create commodities even in circumstances of a most favourable character.

But to labour aided by the inventions and discoveries of clever men, and exercised in a properly organised way, the possibilities of wealth production are for practical purposes unlimited. We of to-day are very fortunate in being the heirs of all the ages—the inheritors of the work and genius of every great man and woman of every nation. We have a greater opportunity than ever existed in the world before.

It is as true as it is remarkable that the great inventions and discoveries in history have been the work of a few people, and that, even if we include the small inventions, the number of people to whom we are indebted for the modern means of making wealth amounts to a tiny

fraction of the people who have lived in the world. If we are ever tempted to be proud of using such inventions as the electric light, or the railway train, or the steamboat, or wireless telegraphy, we shall do well to remind ourselves that we did nothing to bring them about, and that the least we can do is to use them intelligently.

When we organise labour to make it effective, we have seen how it comes to be divided up between individuals, between trades, between territories, and between nations, in such a fashion as to get the best results. By organisation we can make ordinary or even dull people as effective for many purposes as if they were very clever indeed, while we can raise the value of all the people concerned, whether individually clever or not. If a man invents a tool, the tool is the embodiment of his cleverness, and if he remains the sole user of the tool, the value of his exceptionally clever brain is confined to the one possessing it. If, however, he shares the secret of his tool with others, each one who has it at once becomes a clever worker, by virtue of a tool he could not have invented for himself. So men become, as it were, *clever at second-hand.*

HOW THE WORLD PAYS IN POVERTY FOR THE NEGLECT OF SCIENCE

The arranging of work in such fashion as to make it fruitful is a very important thing, and it is not everyone who has the gift of happy arrangement. What we need for the best results is the organising of the working of the best processes and inventions, and we owe a good deal to the men who are capable of that.

Organisation and invention between them save work, and in saving it set free labour to do other work. This is a most important economic truth, for the neglect of which we pay in poverty and distress.

Let us think of a hundred people working on an island and entirely dependent on their own labour. If the labour of all the hundred is needed to find enough food to keep them alive, that food is their sole wealth. They can possess nothing more, because all their efforts are needed to feed themselves, and they must feed or die. Therefore, in such case, they cannot have clothes, or houses, or furniture, or any other comforts. But suppose clever ones among them invent good weapons with which to hunt—weapons so effective that only fifty people are needed to feed the hundred islanders. In that case the work of fifty food-getters is saved, and therefore, fifty persons are set free to do other jobs. The fifty, being set free, can set to work to construct huts and fashion garments. The little community becomes richer, not because more work is done but because a particular form of work has been saved. Suppose the fifty remaining food-getters, by further inventions, become 25, then 25 can produce the food needed by the hundred islanders, and 75 are free to do other work. So again, the islanders become richer *because work has been saved.*

THE GREAT DIFFERENCE BETWEEN MAKING WORK AND SAVING WORK

This process of *saving labour* is just as true in a great nation, like Britain, as in the little island we have imagined. A nation can only become richer by means of organisation and invention continuously *setting free labour to do fresh work.*

That is why the idea of making work is a fallacy—a deceptive thing. Sometimes, workmen are tempted to think that if they can spin out a piece of work, or refuse to use a labour-saving machine, they will make more work for others, but the very reverse is the truth. It is only by saving work, by using inventions as freely as possible, by producing as much as possible, that we can make things better for other people. He who makes work, in the sense of taking an unnecessarily long time to produce a thing, makes poverty; he who saves work, in the sense of producing as quickly as possible and as much as possible with the least amount of labour, creates wealth and employment.

We see, too, how important it is to use the word Labour broadly, as describing all human effort by hand and brain, and not to apply the term to muscular effort or manual work alone. Labour is made up of muscular effort, or skill in the use of tools and machines; and of mental effort, either in its highest form as original invention, or in the trained performance of services involving measurement, or calculation, or arrangement, or enterprise.

THE GREAT VALUE OF ENTERPRISE IN THE LIFE OF THE WORLD

Not the least of the mental processes is Enterprise. We apply this term to the *taking of risks* in trade, finance, or manufacture. It embodies Courage and Judgment as well as Cleverness. A man may be clever enough to invent a new process, yet lack judgment as to how to use it, or

courage in putting it to the test and risking money in making it a success. This enterprise is a very individual quality, which some men have in abundance, and others lack altogether. It is a supremely valuable quality, which has always been freely recognised among peoples who do not possess it. Boys playing a game, or savages needing a chief, or civilised men looking for a leader, usually find one among them who sees clearly what to do.

This wonderful and complex thing we call Labour is exerted under certain conditions provided by Nature. The *gifts of Nature* play a most important part in production. These gifts are many, and they are sometimes conveniently summed up under the single term Land, as we summed up the many forms of manual and mental effort under the single term Labour. The great English economist, Professor Marshall, describes land as meaning " the materials and the forces which Nature gives freely for man's aid in land and water, in air and light and heat."

HOW SCIENCE HAS OPENED UP NATURE'S GREAT STORES FOR MAN

Man is a land animal who learned with difficulty to cross water and to transport goods across the seas. For long man had to be content to inhabit land surfaces, and to utilise little more than was near the surface. If minerals outcropped, or could be readily quarried, he could get at them, but if they were at a depth they were unobtainable by him. In modern times the use of steam and electricity and machines has enabled us to mine to great depths and so make use of the natural stores of coal and minerals which were formerly neglected.

The term Land as an agent in the production of wealth has thus come to have a very wide meaning, including not only all that is on the surface of land and water, but all that science can discover in them or beneath them.

We have now dealt with two great factors in wealth production—Labour, or human efforts ; and Land, or natural gifts. We now come to a third and exceedingly important thing known as *Capital*.

The word Capital is from the Latin word *caput*, or head. The head city of a country is its capital. So with a business. When company trading began, the stock of goods, or instruments, or machinery, or buildings, which it employed was called its *capital stock*, and this came to be shortened to *capital*. The capital of a business is the stock with which it works.

Good work cannot be done without an appropriate stock of things to work with or to work on. One great difference between the work of a savage and the work of a civilised man today is that the savage worked with a very tiny stock or capital, consisting of a few weapons, tools, and pots, while civilised man works with a big stock of buildings and machinery.

THE IMPORTANCE OF CAPITAL TO THE PROGRESS OF MAN

We have seen how invention has multiplied the powers of men and made them, even if not clever themselves, the users of clever things. It is important to see, however, that, *if someone did not take the trouble to store up machines and instruments embodying inventions, the inventions could not be used.*

Suppose someone invented a cheap method of extracting from clay the shining white metal, aluminium, of which it is chiefly composed. That would be a tremendous service to mankind, because aluminium is not only beautiful but useful. Such an invention would make all the difference to the powers of men, and we should employ aluminium for a thousand new purposes. If we think it over, however, we see that the new process could not be employed unless somebody found the means to set up the inventor's clever machinery. Someone must find the *capital* to utilise the new invention, or the invention will remain useless.

Let us take the case of a great group of inventions such as forms the basis of an electric tramway. It is a marvellous thing, none the less so because custom robs us of astonishment that a heavy vehicle should move along rails with no visible motive force. A number of clever brains thought out the ideas which, embodied in wood and metal and roadwork, form an electric tramway.

THE IDEAS WHICH MAKE GREAT ENTERPRISES POSSIBLE

Yet, no matter how clever the ideas, the tramway could not have been if some people had not stored up buildings to hold dynamos and the trams when not working, the trams themselves, repair shops, a track and rails, and offices in which to control the whole undertaking. These things form the *capital of the tramway*. They embody the inventor's ideas, and labour becomes fruitful because capital,

working on natural gifts or land, has made it possible to work inventions.

Now let us think how it became possible for capital to be used. We see how important it is; where does it come from?

We can understand this by taking simple cases. We can imagine a savage catching animals with his hands with great difficulty. We can then imagine him conceiving the idea of throwing a stick to kill a bird, or other animal, and of gradually improving the shape of the stick until it becomes a spear, or club, or dart. If we think of it, our savage, in fashioning his spear, is *storing up work to enable him to do work better.* In the hours in which he is shaping his spear he is really making a store of work, or saving up work. Having saved it, he possesses a spear which enables him to work better. If he has the sense to make a weapon out of the tusk of an animal he kills, he saves more work, and may come to possess a knife which helps him to work better still. The Eskimo makes a most effective knife out of the tusk of a walrus.

THE CONVENIENT FORM IN WHICH CIVILISED MAN SAVES UP WORK

It is this saving of work which results in capital. The Eskimo's sledge, his dogs, his reins, his canoe, his knife are his humble capital or stock. It is the result of his careful saving, and if he did not thus save he would perish.

The principle in civilised communities is the same. We have learned to exchange goods with each other by means of Money. By money we measure the value of things by a common standard, and money enables civilised men to save up work in a convenient way. Instead of saving up hats if we make hats, or boots if we are bootmakers, we can save up money. The money we can either use ourselves or lend to others to establish stocks of capital with which to use inventions, and to enable persons to be usefully employed in working on inventions.

Thus Saving becomes very important, for without it all the clever inventions of machines and appliances would be useless. It would have been in vain for Watt or Trevithick or Stephenson to invent the railway engine if people had not been found willing to lend big sums of money to make enough locomotives to run a railway. It would have been in vain for men to invent wireless if enterprising and saving people had not come forwfrd to put their money into big wireless stations and elaborate machinery.

Now we see clearly what capital is. It is a stock of goods the result of saving, and if no one saved it could not exist. The person who thus saves and owns capital is sometimes called a Capitalist. He may be either a man who has saved himself to form a business which he has himself organised, or he may be one who, having nothing to do with the business himself, has lent the money required to buy the stock needed to run the business.

WHAT "LIMITED" MEANS AT THE END OF A COMPANY'S NAME

Most modern businesses are owned by what are called Joint Stock Companies, some of which, like railway companies, are established or incorporated by Acts of Parliament, and some of which work under a general Act of Parliament made to protect them from bad management. These are known as Limited Liability Companies, and we know them because under the law they have to put the word *Limited* at the end of their names.

This limited liability method of saving is very useful, and has done much to help enterprise and to create wealth. The meaning of limited liability is that a number of people can each contribute a small sum of money to make a big total sum, while the risk of each is limited to the sum subscribed. Thus a company may be formed to work a new method of making soap, and, if it requires a capital stock worth £100,000, a thousand persons may each take one hundred shares of £1 and have no further risk, whereas it might not be possible to find one person willing to risk as much as £100,000 in a new experiment. That is how the limited liability form of saving helps enterprise, increases capital, and in this way benefits the whole of the community.

THE THREE CHIEF FACTORS IN THE PRODUCTION OF WEALTH

Thus we have examined three things which we sometimes speak of, Labour, Land, and Capital, the three chief factors in the production of wealth:

Labour, as covering all human effort, whether of hand or brain;

Land, as covering all the Gifts of Nature which man may either use or neglect;

Capital, the saved stores without which our labour is in vain.

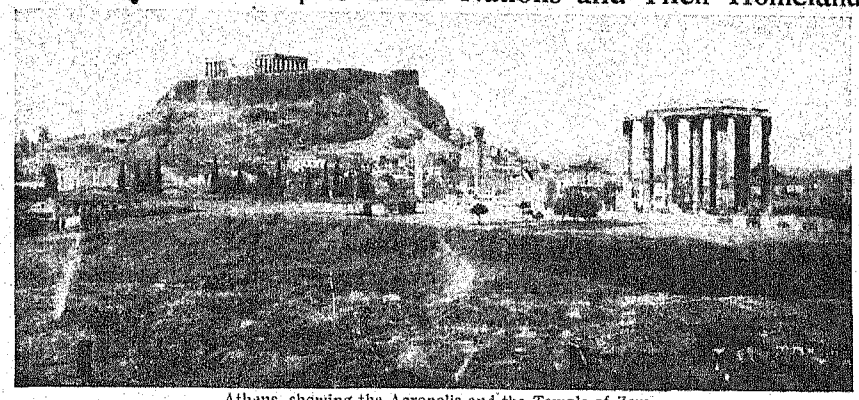
FLOWERS OF THE HEATH

1. COMMON BROOM 2. GREATER BUTTERFLY-ORCHIS 3. HAIRY VIOLET 4. HAREBELL 5. COMMON TORMENTIL 6. GOOD-KING-HENRY 7. FURZE 8. YELLOW FLEABANE 9. ROCK-ROSE 10. DEVIL'S BIT SCABIOUS

1. COMMON BIRD'S-FOOT 2. WILD MIGNONETTE 3. WHITE HOREHOUND 4. SMALL BUGLOSS
5. COLUMBINE 6. NEEDLE-WHIN 7. WOOD CUDWEED 8. WALL HAWKWEED 9. GREAT BURDOCK
10. COMMON CALAMINT

1. MOUNTAIN GROUNDSEL 2. BORAGE 3. HEATHER 4. WOAD 5. SLENDER-FLOWERED THISTLE
6. YELLOW FIGWORT 7. TEASEL 8. BASIL THYME 9. GREAT BROOM RAPE 10. CILIATED HEATH

1. COMMON STAR THISTLE 2. SMOOTH HAWK'S-BEARD 3. RAMPION 4. COMMON WORMWOOD
5. COMMON HOUND'S TONGUE 6. LESSER STITCHWORT 7. MILKWORT 8. DYER'S ROCKET
9. BLACK HOREHOUND 10. ROUGH SOW-THISTLE



Athens, showing the Acropolis and the Temple of Zeus

GREECE AND ITS PEOPLE

No land has had such faithful friendship as Greece in modern times, for all civilised nations understand how much they owe to the Greece of long ago, when the race nurtured in this little land produced the most vigorous thinkers who had appeared in the world.

Greece is the smallest country that has ever been great. Though for a moment she was great in warlike conquest—in the time of Alexander—her real influence in the past was exercised through her intellectual and artistic energy, and has survived in her language, thought, and art. But of Greece as a lasting force in history we read elsewhere. Here we glance at her as she stands among the countries of the world today.

Old Greece, the little land irradiated by story long ago, was submerged first under a wave of conquest by the Roman Empire, though she continued to live by her powers of mind, and conquered her conquerors through her thought and her art.

Then she was buried and almost extinguished, except for her existence in books, under the great Mohammedan invasion of eastern Europe. It was not till 1821 that the Greeks re-asserted themselves against their Turkish rulers, and in 1828, with the aid of England, France, and Russia, they acquired full liberty.

Since that time they have been slowly extending the independence of their race over the southern part of the Balkan Peninsula, which was their ancient home, and over the many islands of the Aegean Sea, where they spread in colonies during their early period of greatness.

Originally Greece was about the size of Scotland, and consisted of Attica, Peloponnesus, and a strip of the end of the Balkan Peninsula, backed by rugged mountains which separated her from Macedonia, a region which, at a later period, enlarged her and gave her a new strength. Then there was also the island of Euboea, and many small islands southward of Attica and along the shores of Asia Minor, with Crete and Rhodes still farther to the south. Now Greece has recovered from Turkey practically the whole of this territory, including Macedonia, and also Thrace to the eastward as far as the River Maritza. The present population of about five millions is probably a larger population than has ever before lived under one Greek Government since the time of Alexander.

The most recent gain of territory, which came to Greece after the Great War, was entirely due to the friendship of the Western Powers, for during the most serious part of that war Greece played an

ignoble part under the leadership of her king Constantine, a Danish prince married to the sister of the German Emperor. After Greece had long been a thorn in the side of the Allies, through the treacherous action of Constantine, she was finally led, by the statesmanship of M. Venizelos, to support the cause of liberty, and her king retired to Switzerland.

At the close of the war the territorial gains of Greece were very great. They extended across Thrace to the Black Sea, leaving Turkey only a small portion in Europe around Constantinople, and included Smyrna, the chief port of Asia Minor, and the country immediately around it. At this time, entirely through the influence of her one statesman, modern Greece had realised to the utmost all her legitimate ambitions, and more.

But in politics modern Greece has not sought after wisdom. Bursting with pride, the country dismissed Venizelos, recalled Constantine to the throne, and started on an ambitious advance into Asia Minor which ended in their utter defeat by the Turks, who swept not only the Greek army but the Greek population out of the Anatolia Peninsula. So Turkey recovered Eastern Thrace and Adrianople, and shut Greece off from the Black Sea.

As a consequence of these disasters Constantine was finally dethroned by revolution and his son was accepted as king, the Government remaining in a state of revolutionary uneasiness, for the modern Greeks are the most volatile race in Europe. Later, a Republican revolution caused the king to withdraw into exile after a very short reign.

Greece is essentially an agricultural country, its chief productions for export being fruits, particularly currants, of which she exports to Great Britain an average value of £5,000,000. Besides the currant vine, the olive, the grape vine, orange, lemon, and fig trees are largely grown. Olive oil and nuts are among her leading exported products. Greece does not grow enough corn to feed herself, and her forests are rapidly being destroyed for fuel, with bad effects on a climate which is already too dry. There is a great variety of mineral wealth, but it is only worked to a small extent. Iron, magnesite, lead, and chromite are the chief ores, and the salt industry is important. The sheep is the leading animal product.

The only large cities in Greece are Athens, which, with its port, Piraeus, has a population of over 400,000, and Salonica (170,000), the terminus of the European railway system on the Aegean Sea. Other towns are Patras (50,000), with a large currant trade; and Calamata (20,000), the chief port for the fig trade. Several of the considerable towns are on the island of Crete, and the town of Corfu on the beautiful island of the same name has about 30,000 inhabitants. Salonica has a considerable Jewish population which came from Spain, and Spanish is still spoken there.

Athens, of course, is the great centre of attraction for travellers, and the study of its antiquities is regularly carried on by the leading Western nations. In this respect it vies with Rome and Jerusalem, for it is the past of Greece that casts a glamour over the whole land.

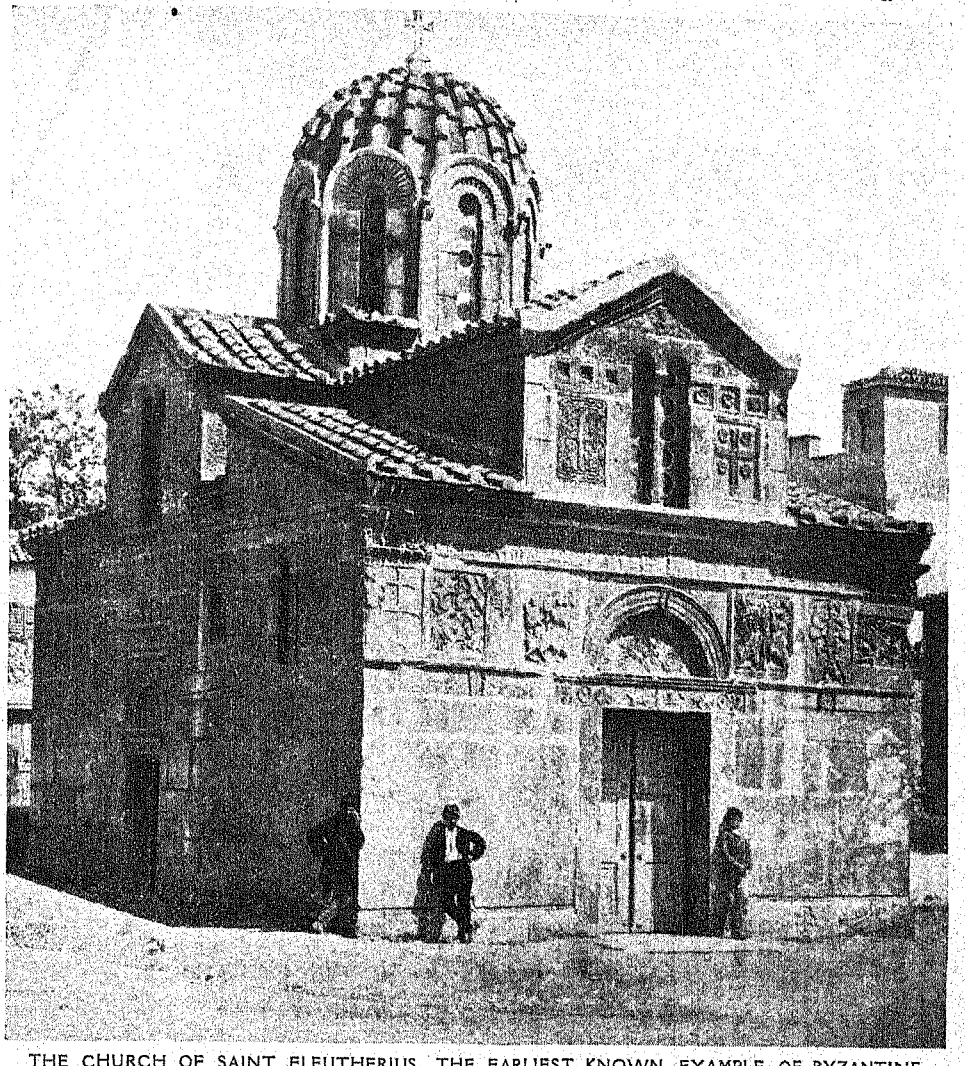
RUMANIA AND ITS PEOPLE

THE origin of the Rumanian people is a matter of some controversy.

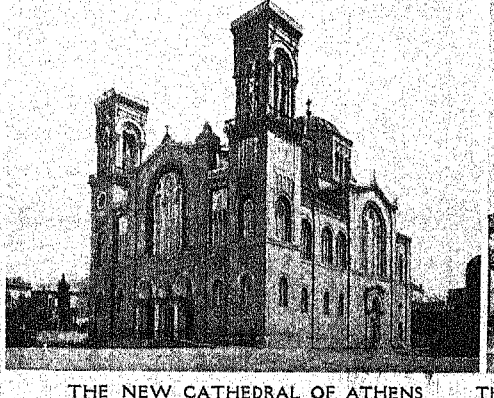
The country represents the Dacia of Roman imperial days, Dacia being the outlying province of the empire which bore the brunt of attempted invasion by barbarian hordes pouring down on it from the lands now called Russia and Hungary. It was therefore strongly fortified and garrisoned along the line of the Lower Danube, and the Rumanians contend that they are descended, by birth and language, from these outlying defenders of Rome, and so have a close kinship to the Latin races. The greater likelihood is that they are a branch of the Slav stock, the Wallachs, who remained faithful by language and tradition to old Rome.

The two ancient States of Wallachia and Moldavia were the first States outside the Austro-Hungarian combine to obtain partial independence of the Turks. In the eighteenth century they had a large share of local government, but had to pay heavy tribute to Turkey through a Turkish governor, who generally grew rich by his extortions. Late in the century they drew nearer together, and became known as the Danube Principalities, and Russia assumed towards them an attitude of protection. In 1861 the two States were united, the name Rumania was adopted

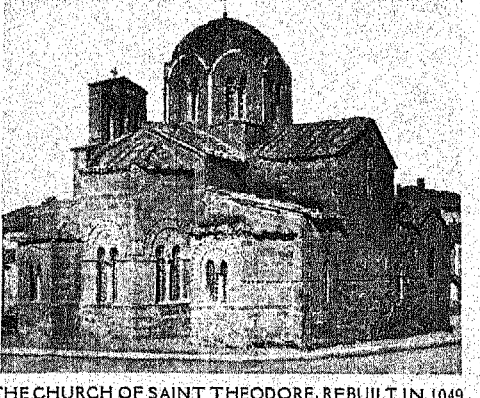
OLD AND NEW CHURCHES OF ATHENS



THE CHURCH OF SAINT ELEUTHERIUS, THE EARLIEST KNOWN EXAMPLE OF BYZANTINE ARCHITECTURE IN GREECE, BUILT EARLY IN THE NINTH CENTURY



THE NEW CATHEDRAL OF ATHENS



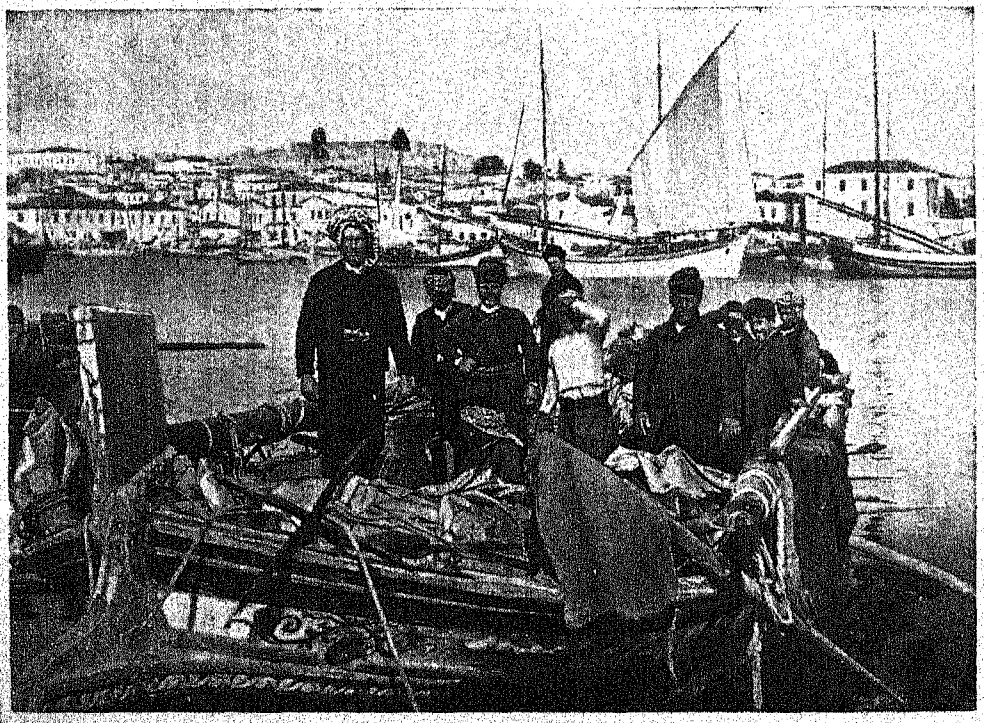
THE CHURCH OF SAINT THEODORE, REBUILT IN 1049

THE PEOPLE WE MEET IN GREECE

A POSTMAN OF CRETE

A LITTLE MAID OF SALONICA

A GIRL OF ANDRAVIDA



BOATMEN IN MYTILENE HARBOUR

TYPES OF THE PEOPLE OF RUMANIA

A BRIDE OF THE
EASTERN CARPATHIANS

A SHEPHERD OF
THE MOUNTAINS

A WORKER
IN THE FIELDS

VILLAGERS AT A SERVICE IN
A CHURCH IN TRANSYLVANIA

PEASANTS OF THE SOUTHERN CARPATHIANS
OUTSIDE THEIR WOODEN HOME

and a prince was elected. The next prince was given the title of king.

The Rumanian race were spread, in 1914, far beyond the frontiers of the kingdom. They were in a majority in Russian Bessarabia and in nearly the whole of the mountain region of Transylvania, then belonging to Hungary; and they also were thickly scattered in the Hungarian plain, on the lower courses of the Theiss and the Danube. The prosperity of the country under freedom had led to a strong development of national feeling. But when war came in 1914 on an immense scale they acted in marked contrast with the neighbour State Bulgaria. When the war approached a crisis Rumania finally threw in her lot with the Western Powers, and though German, Hungarian, and Austrian troops overran her for a time, she resumed the contest, and at its close became ruler of all the lands where the Rumanian race are in a majority.

In this way she gained from Russia Bessarabia as far eastward as the River Dniester; from Austria, Bukovina; and from Hungary all Transylvania and the greater portion of southern Hungary, known as the Banat.

From Hungary Rumania received over 7,000,000 people, in the provinces now called Maramuresh, Crisana, Transylvania, and Banat; from Russia, in Bessarabia, over 2,000,000; and from Austria, in Bukovina, 800,000. Of her 17,000,000 inhabitants less than 8,000,000 were in the provinces of Wallachia, Moldavia, and Dobrudja, which formed Rumania in 1914.

The new Rumania forms a compact country, with many races forming minorities in the regions that have been annexed. Over large areas the soil is rich; there are great forests of seventeen million acres, and abundant minerals, including coal, iron, and salt. Petroleum is by far the most valuable product exported. The Danube serves as a fine waterway to the open seas. Still agriculture is the mainstay of the country. There is an enormous peasant ownership, for all the estates of more than 247 acres have been divided among the cultivators of the soil.

The capital, Bucharest, has a population of about 400,000, and there are a dozen towns with populations between 50,000 and 100,000. Ismail (90,000) and Galatz (80,000) are Danube ports; Constantza or Kustenje (30,000) is the port of Dobrudja. Cernauti, formerly called Czernowitz, the chief town of Bukovina, has 90,000 people; Jassy (Iasi), the chief town of Moldavia, has 80,000. But Rumania is essentially a peasant country, and one of her problems of the future is to evolve in a naturally rich land a nation with a sufficiently wide social and economic variety to make up a true democracy.

With her population of 17,000,000 compactly gathered together, Rumania takes rank as a second-class European Power. For purposes of protection, chiefly against Russia, who is supposed to resent her possession of Bessarabia, she formed an alliance with Czecho-Slovakia, Poland, and Yugo-Slavia, known as the Little Entente—a combination having the special sympathy of France. But Rumania's chief problem is the welding into unity of a variety of races which, before the war, inhabited lands ruled by Hungary, Austria, and Russia.

Her great reserves of oil give her an important association with the modern industrial world, though she is not industrial. Her oil production is largely under the control of business men of other nationalities, but her fertile soil and the fine forests of Moldavia and Transylvania are assets she can herself develop.

BULGARIA AND ITS PEOPLE

To the south of the Danube, and crossing the Balkan range to the Rhodope Mountains, lies Bulgaria, inhabited by a Tartar race who appeared about the year 800, and adopted a Slav language.

They were Christianised in the ninth century, and at the beginning of the tenth century their emperor Simeon ruled from the mountains of Greece to the Carpathians, and from the Black Sea to the Adriatic. But later they fell under the rule of the Byzantine emperors, and were then annexed to Serbia, before, in the middle of the fourteenth century, they were conquered by the Turks during the thrust northward of that martial race.

No part of the Balkan region suffered more from Turkish rule, which in 1876 reached its high tide of cruelty in the massacre of fifteen thousand men, women, and children. Mr. Gladstone roused public opinion in England, and Russia went to war with Turkey in defence of the people who were of the same religion and partly

SCENES IN THE STREETS OF BULGARIA

A FRUIT STALL IN A WORKING-CLASS DISTRICT OF SOFIA

A FARMER ON THE WAY TO MARKET

THE WONDERFUL HEADDRESS OF TWO PEASANT GIRLS

A POSTMAN IN SOFIA

TEAMSTERS AT REST BY THE WAY

STREET TRADERS NEAR SOFIA

the same race as herself. Heroic campaigns were fought in the passes of the Balkans, and finally, by a treaty signed at Berlin by Russia, Turkey, Austria, and Great Britain, it was agreed that Bulgaria should be a principality still under the Sultan, but with a Government and a prince elected by the people. The province on the other side of the Balkans—Eastern Rumelia—was to remain under the direct authority of the Sultan; but in 1885 Rumelia was freed and united with Bulgaria. The country was declared an entirely independent kingdom in 1908, ceasing to have any association in government with Turkey.

THE PEASANT FARMERS WHO OWN MOST OF THE LAND

Bulgaria is essentially an agricultural country, two thirds of the people obtaining their living from the land, chiefly on small farms which they own, while the grazing lands and forests belong to the local community, and are used in common. Wheat and maize are the principal corn crops, and much wheat is exported. Sheep are the principal pastoral animals, and there is a considerable manufacture of woollen goods for home use. Cattle are about half as numerous as the inhabitants. Much fruit is grown, including grapes, and tobacco is produced for export. Bulgaria is rich in coal and iron, but its mineral wealth has not been greatly developed.

Among the special products of the country are its embroideries, and the scent known as attar of roses. The decisive battle of Shipka in 1877 was fought in the midst of the rose gardens which cover thousands of acres on the slopes of the Balkans.

Sofia, the capital, with about 160,000 people, stands on a high plain and is of great antiquity, but has been quite modernised. It was an important town under imperial Rome, and it still has a church which is reputed to have been a Roman temple. Later it became a church, then a mosque, and now is a church again. Other considerable towns are Philippopolis (65,000), Varna (50,000), the seaport on the Black Sea, and Rustchuk (40,000), a seaport and fortress on the Danube.

THE FOOLISH PRINCE WHOSE AMBITION WAS GREATER THAN HIS JUDGMENT

By the treaty which followed the Great War Bulgaria is allowed access, for her trade, to the Mediterranean Sea, and this is secured by arrangement with Greece through the port of Dedeagatch.

No part of the Turkish Empire had obtained more sympathy from the world than Bulgaria, but she had the misfortune to choose as her prince Ferdinand of Saxe-Coburg-Gotha, a man whose ambition outran his judgment. Elected prince, he soon declared himself a king, and then a tsar.

Towards the close of 1912, when Turkish rule had proved intolerable in the part of the peninsula still under the Sultan, Serbia, Bulgaria, Montenegro, and Greece united in war against their common enemy. The complete defeat of the Turks was followed by a division of her European territory between the victorious nations.

But a conference held in London failed to make a division of the conquered territory which would satisfy the conquerors, and the war was resumed by Serbia and Greece (joined by Rumania) opposing Bulgaria. Turkey resumed her occupation of Adrianople, which had been captured from her by the Bulgarians; and, defeated and exhausted, Bulgaria was obliged to submit, and lost to each of her enemies territory which would have been hers by the Treaty of London.

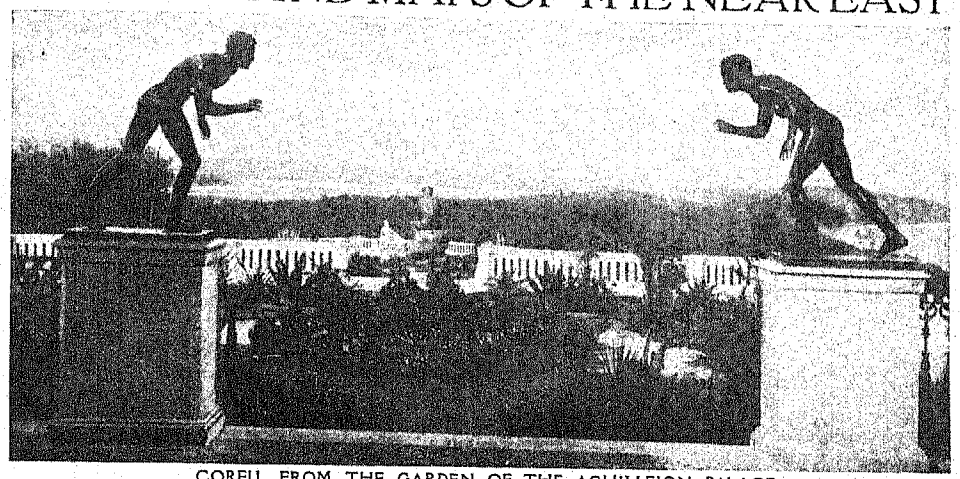
HOW THE BULGARIAN NATION PAID FOR THE TREACHERY OF ITS RULER

When the Great War was being fought King Ferdinand, who believed the Germans were invincible, thought he saw a way of recovering Bulgaria's losses and making her the dominant Power in the Balkan Peninsula as an ally of Germany. Forgetful of the part played by Russia in the delivery of his country from the rule of the Turks, and of the friendship by which Britain had supported Bulgaria, he made common cause with the Turks, joined in the war on the side of Germany, and attacked Serbia while she was gallantly defending herself against Austria and Hungary.

Such ingratitude and treachery met with dire punishment. A month before the Kaiser abdicated Ferdinand renounced his crown in Bulgaria and fled, and under the final Treaty of Peace Bulgaria lost to Serbia part of the Macedonian territory she had claimed after the war of 1912, while to Greece was allotted Thrace, with Adrianople and the Black Sea coast south of Vasiliko. Bulgaria remained a third-class Power with a population of under five millions.

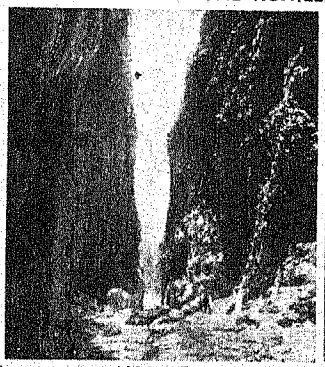
Ferdinand was followed by his son Boris as king, and her troubles since the war have only been the internal strife of her political parties.

PICTURES AND MAPS OF THE NEAR EAST

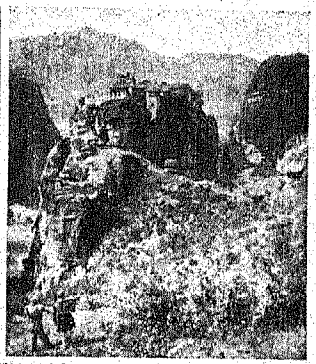


CORFU, FROM THE GARDEN OF THE ACHILLEION PALACE

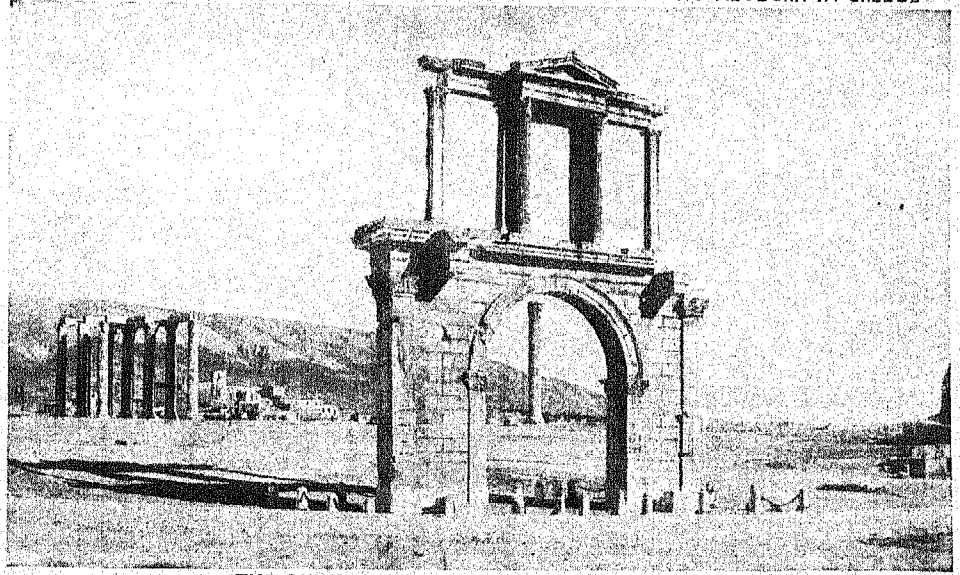
THE WHITE TOWER OF SALONICA SEEN FROM THE SEA



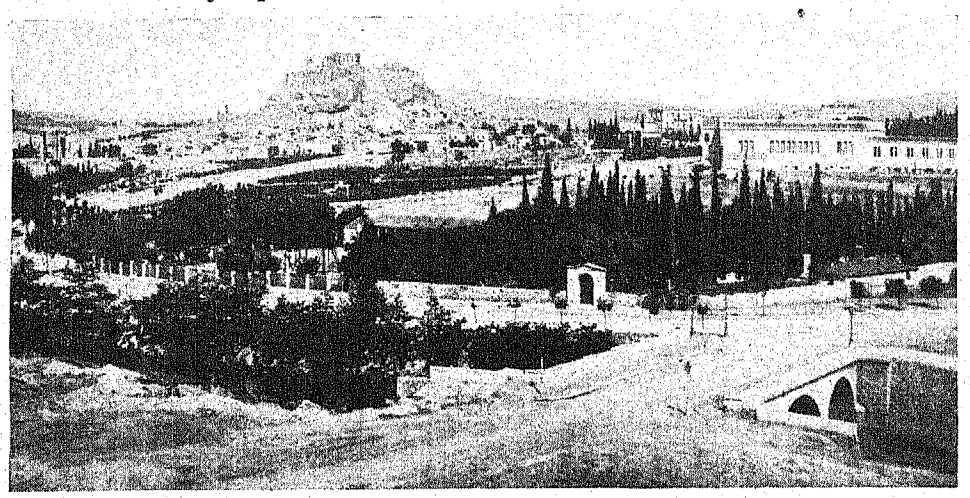
A MOUNTAIN ROAD IN CRETE



THE MONASTERY OF ST. BARLAAM AT METEORA IN GREECE



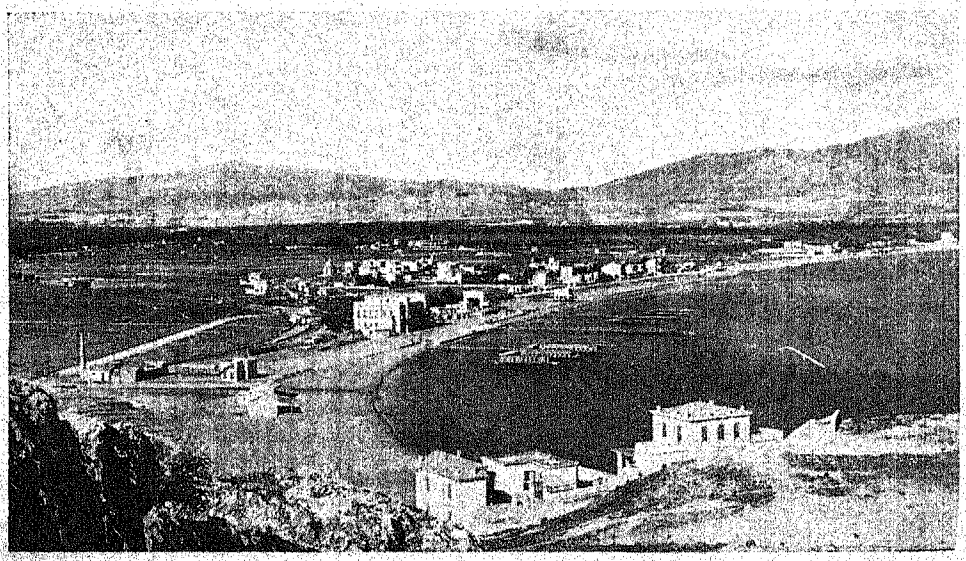
THE RUINS OF THE ARCH OF HADRIAN, ATHENS



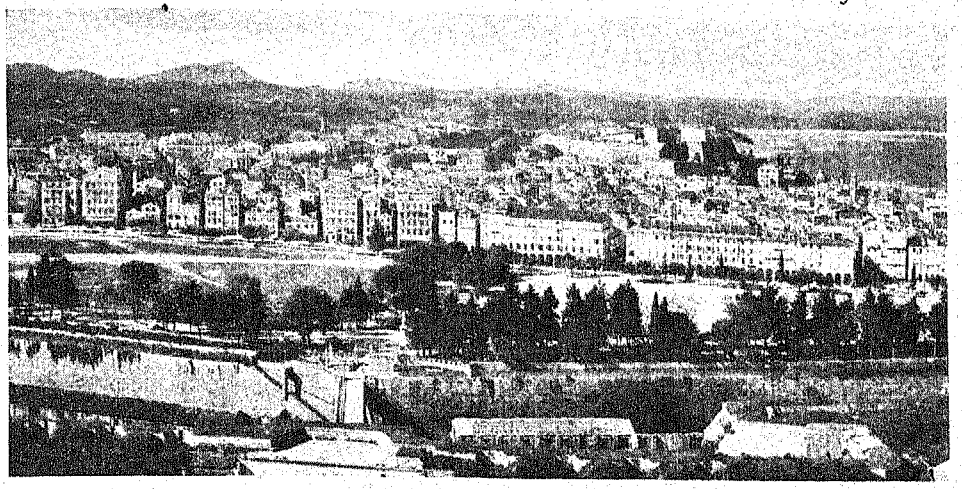
ATHENS SEEN FROM THE GREAT STADIUM. WITH THE ACROPOLIS IN THE DISTANCE

A STREET IN CORFU

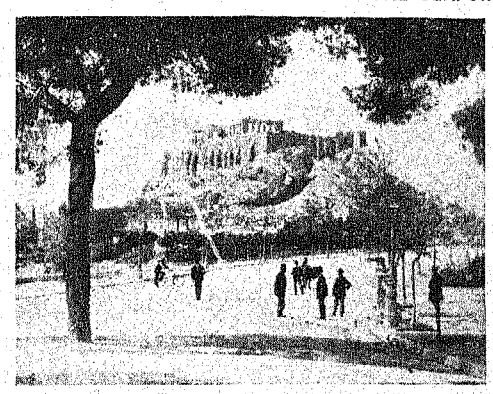
THE HARBOUR AND CITADEL, CORFU



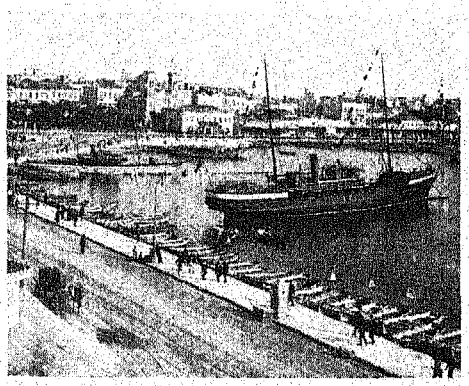
PHALERON BAY, PIRAEUS



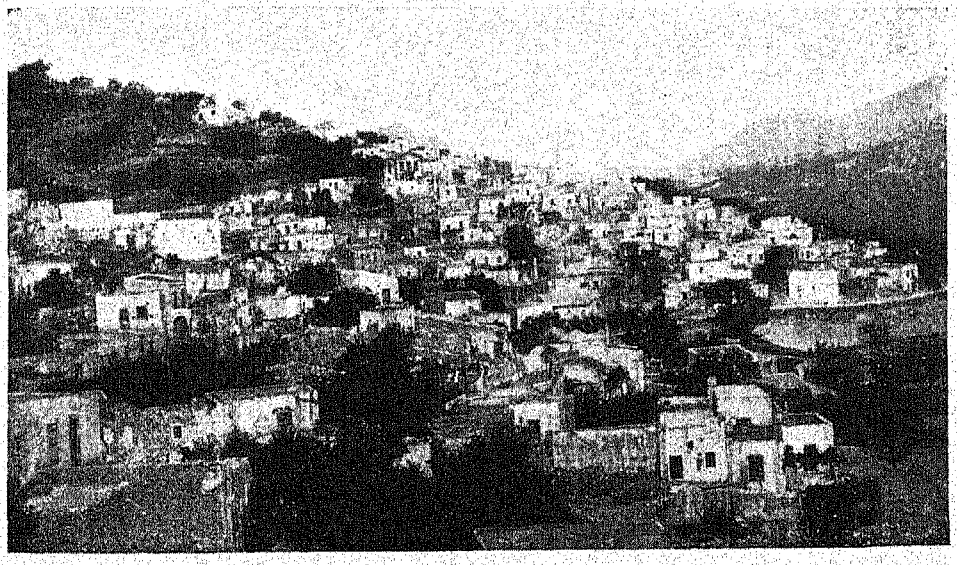
THE SEAPORT OF CORFU



THE ACROPOLIS TOWERING ABOVE ATHENS

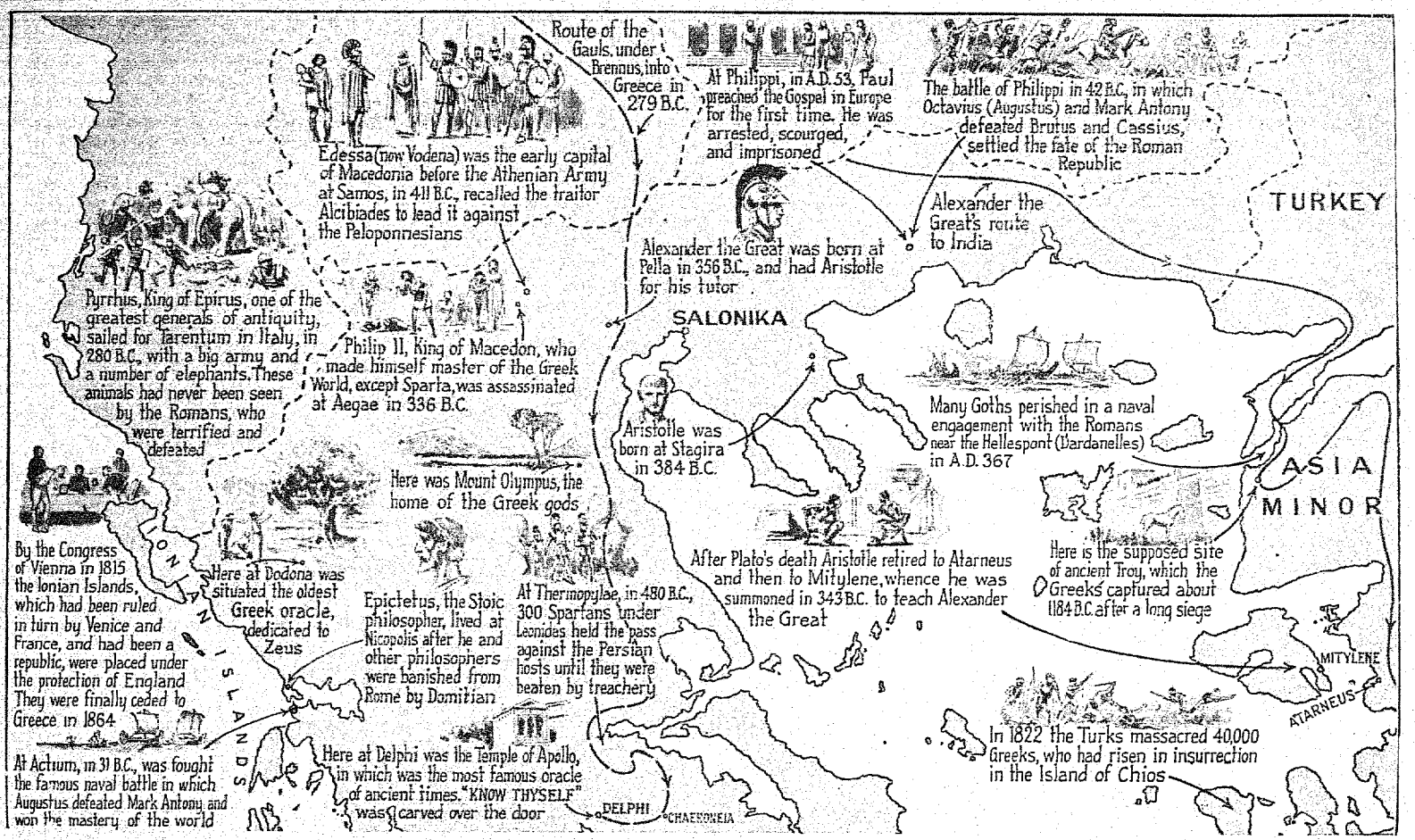


PIRAEUS, THE PORT OF ATHENS



A HILLSIDE VILLAGE IN CRETE

GREAT EVENTS OF THE GREAT DAYS OF GREECE



NO COUNTRY HAS A MORE GLORIOUS PAST THAN GREECE AND MANY OF THE MOST IMPORTANT EVENTS IN HER HISTORY ARE SHOWN HERE

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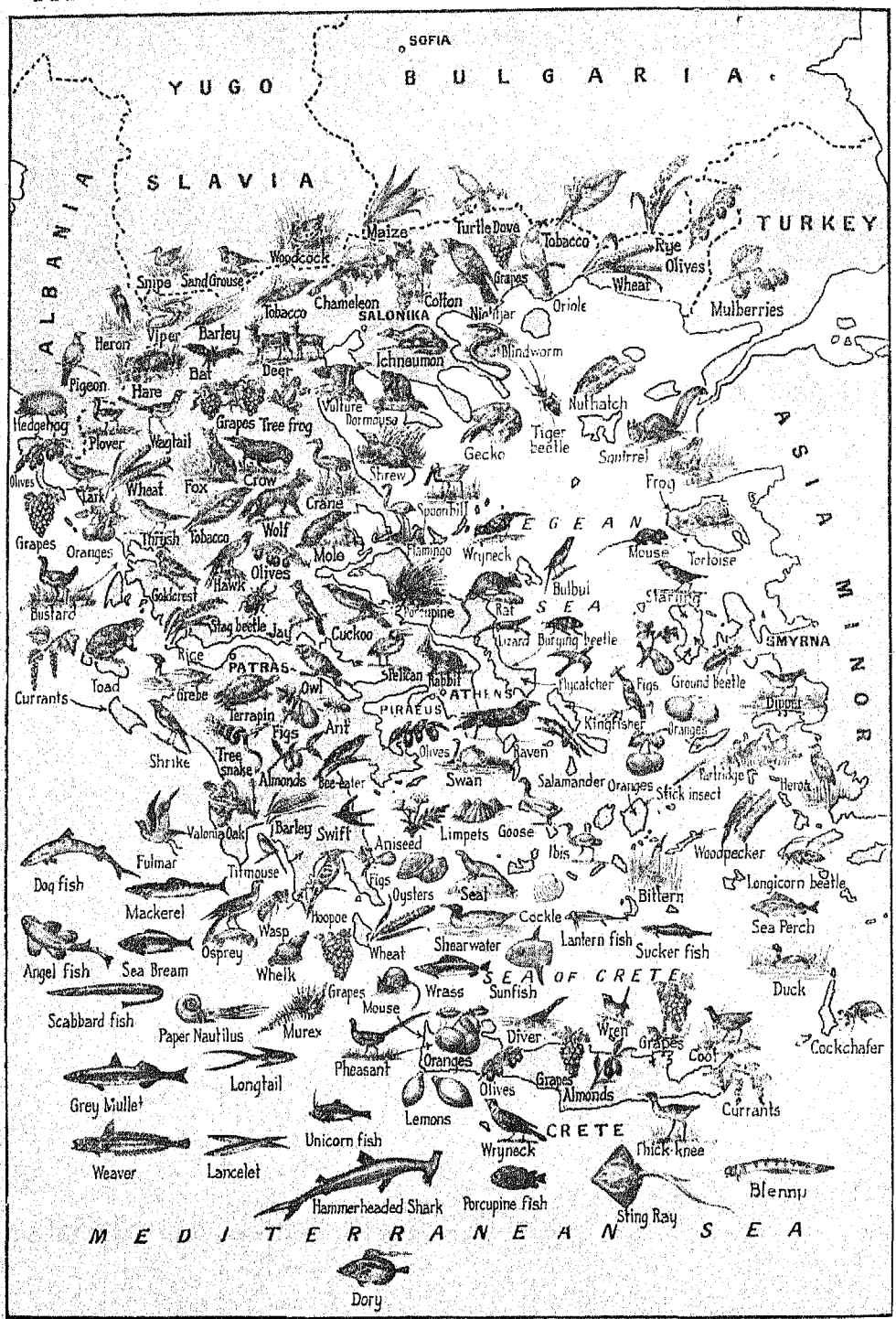
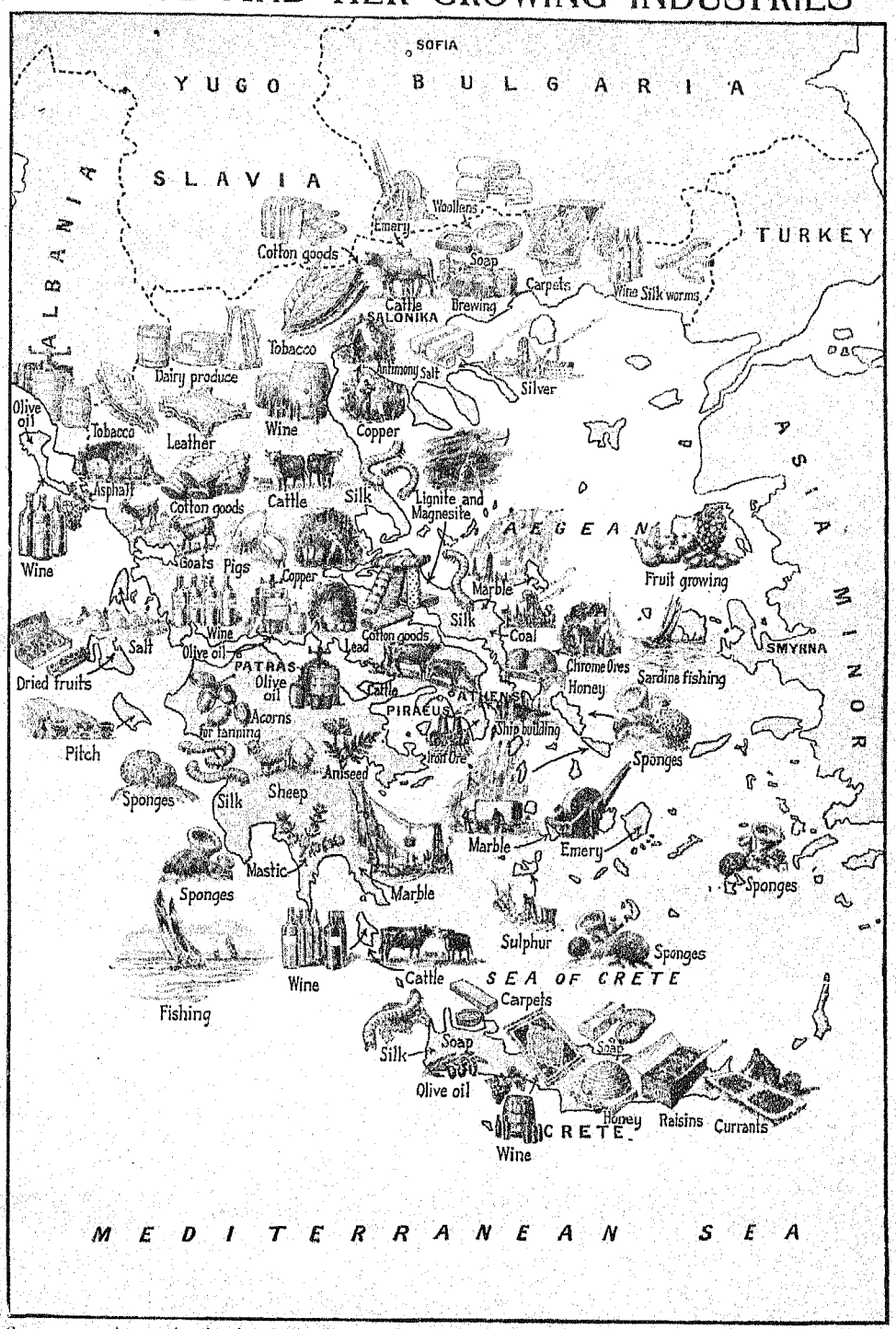
5157

THE PLANT AND ANIMAL LIFE OF GREECE

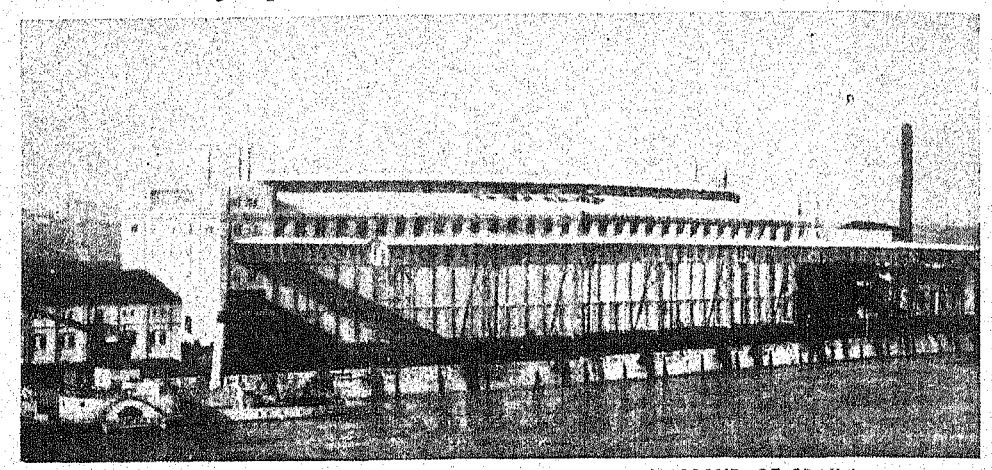


As shown in this picture-map Greece has a very varied and abundant plant and animal life. The woods shelter wolves, foxes, and squirrels, the porcupine is found in various parts, and there are considerable numbers of vultures. The tortoise, which is abundant here as in some other Mediterranean countries, is the familiar Greek tortoise so often sold in the streets of English towns. Round the coast is found the murex, from which Tyrian purple used to be made.

GREECE AND HER GROWING INDUSTRIES

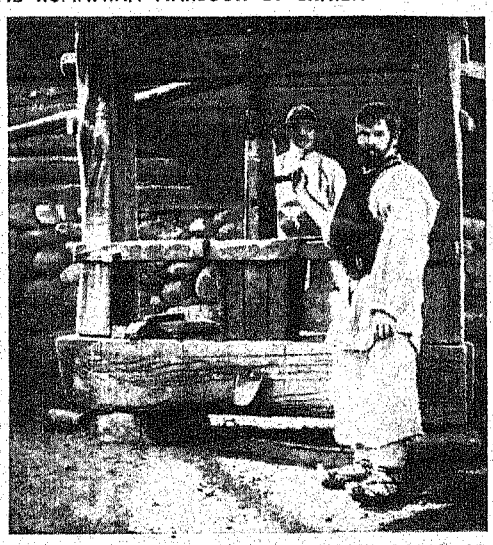


Greece, as can be seen by the pictures on this map, has many valuable industries. She needs only the blessings of peace and tranquillity to develop these, so that they may become of real importance not only to Greece herself, but also to the rest of Europe. Of course her trade in dried currants is very extensive, this fruit being not really a currant like our black and red currants with their many seeds, but a small grape.

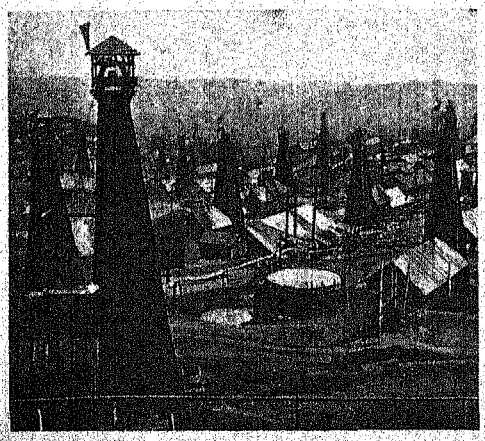


THE HUGE GRAIN ELEVATORS IN THE RUMANIAN HARBOUR OF BRAILA

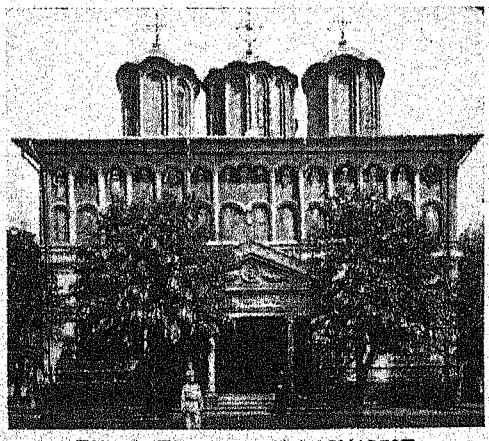
A HALT BY THE WAY, NEAR TIRGOVISHTEA IN THE DEPARTMENT OF DIMBOVITZA



AN OLD VINEGAR-PRESS IN A RUMANIAN VILLAGE IN THE SOUTHERN CARPATHIANS



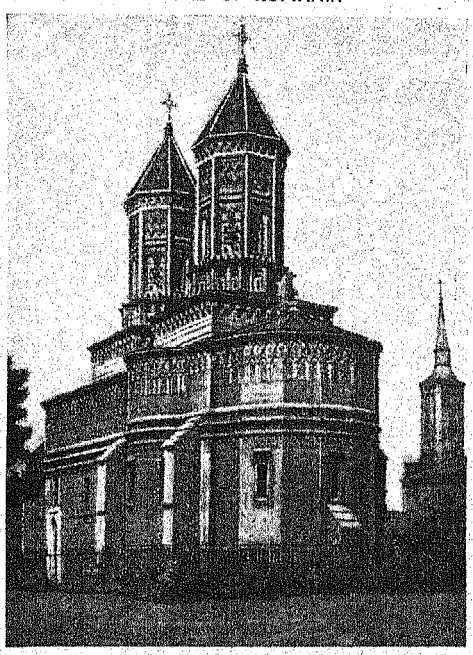
OIL DERRICKS AT CAMPINA IN RUMANIA



THE CATHEDRAL AT BUCHAREST

THE ROOFS AND DOMES OF BUCHAREST, THE CAPITAL OF RUMANIA

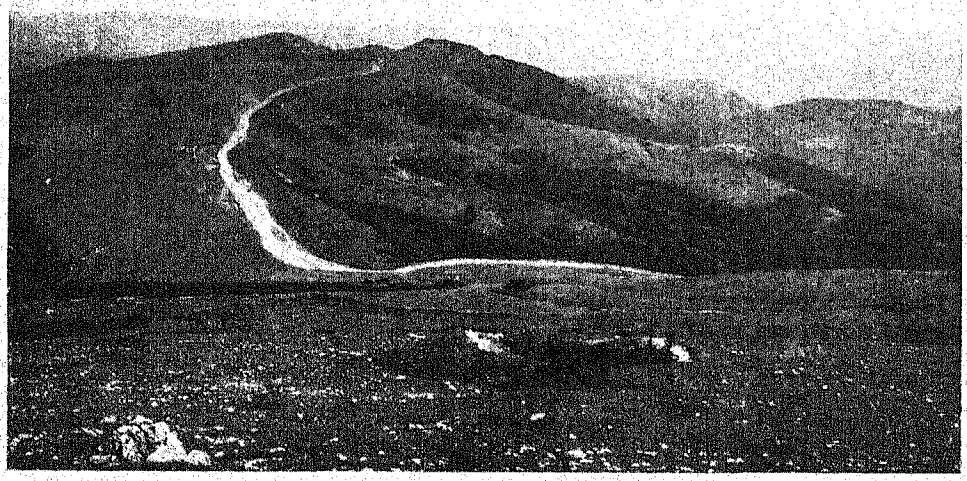
THE RUSSIAN BASILICA IN BUCHAREST



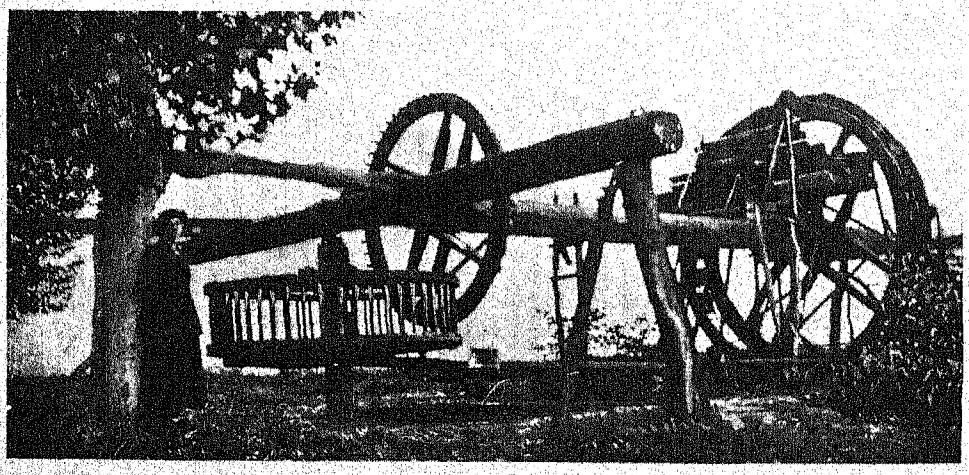
THE CHURCH OF THE THREE SAINTS IN JASSY

THE QUAINT WATER MILLS ON THE LOWER DANUBE IN RUMANIA

A VERY OLD BRIDGE ACROSS THE STRUMNITZA NEAR KUSTENDIL, IN BULGARIA

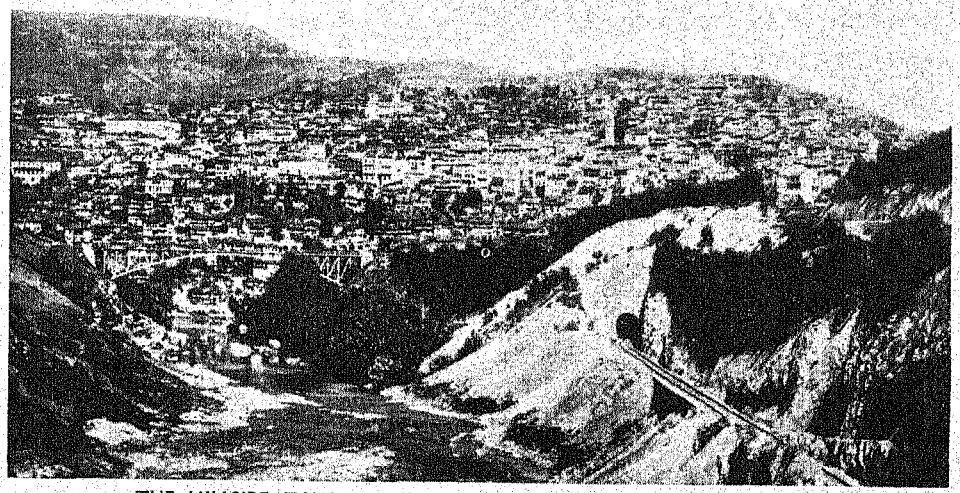


THE SHIPKA PASS ACROSS THE BALKAN MOUNTAINS OF BULGARIA

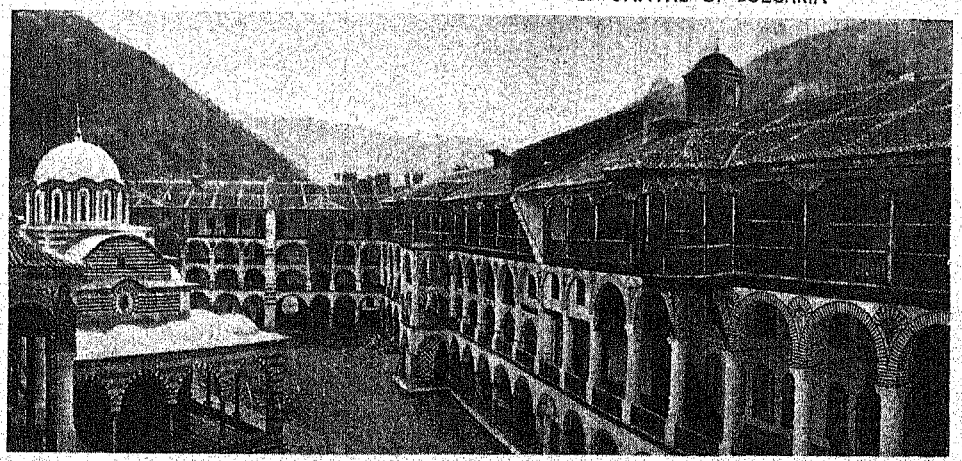


A PRIMITIVE WATER WHEEL USED FOR IRRIGATION IN BULGARIA

THE TSAR ALEXANDER THE SECOND AS HE STANDS IN SOFIA, THE CAPITAL OF BULGARIA



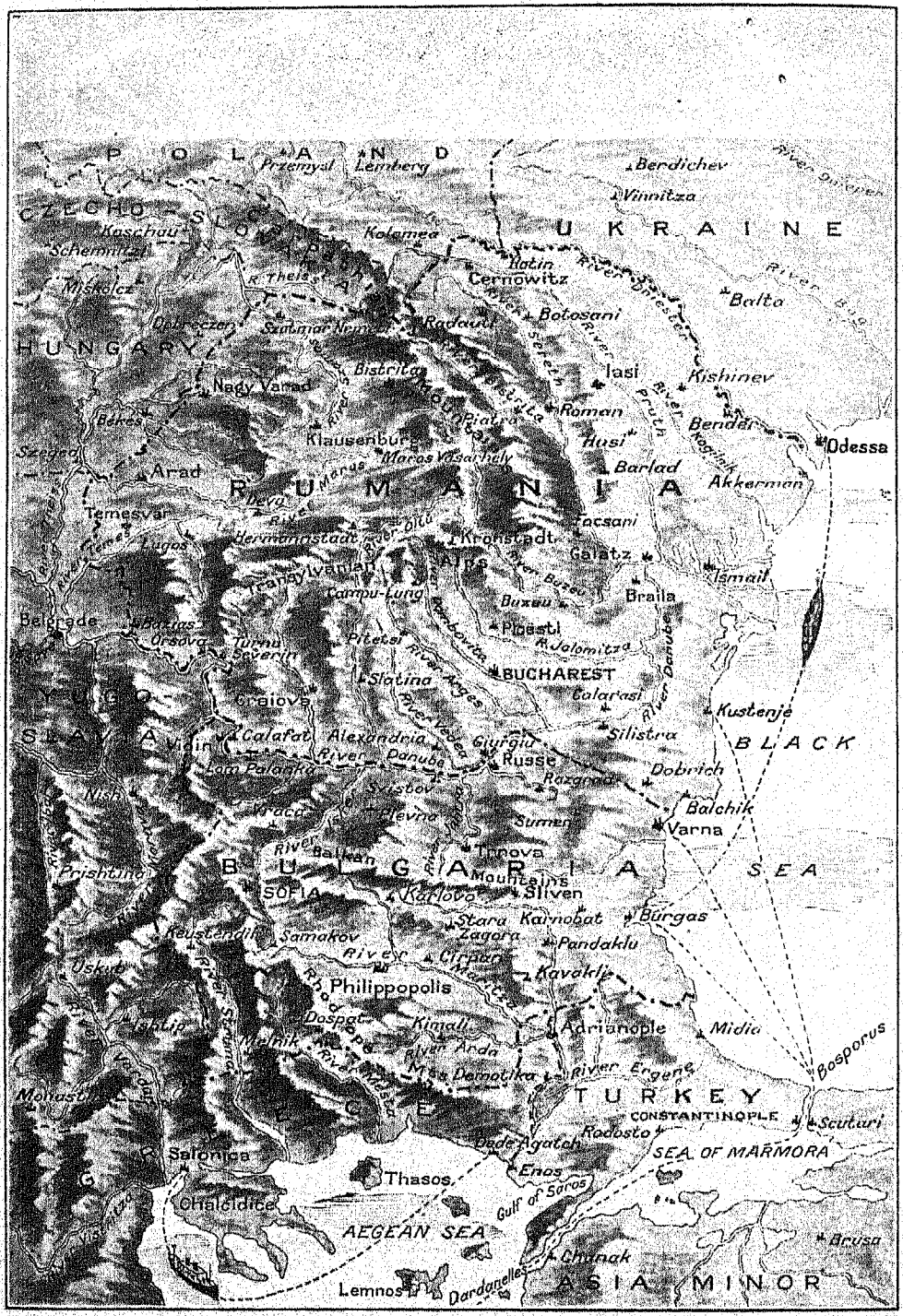
THE HILLSIDE TOWN OF TIRNOVO, THE OLD CAPITAL OF BULGARIA



THE RILO MONASTERY AT THE ENTRANCE TO THE DJUMAIA PASS IN THE BALKANS

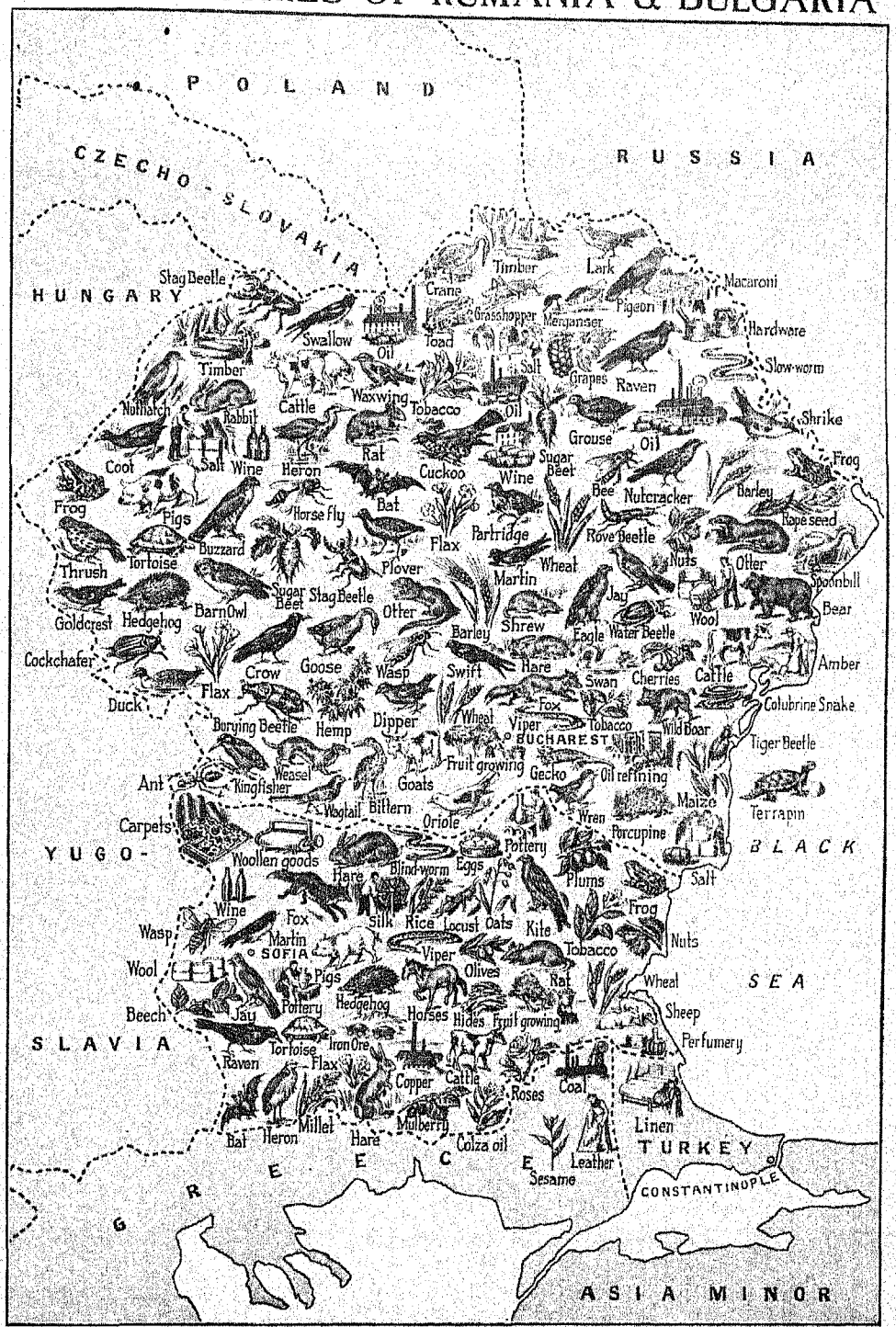
The pictures on these pages are reproduced by courtesy of The Exclusive News Agency and others

A BIRD'S-EYE VIEW OF RUMANIA & BULGARIA



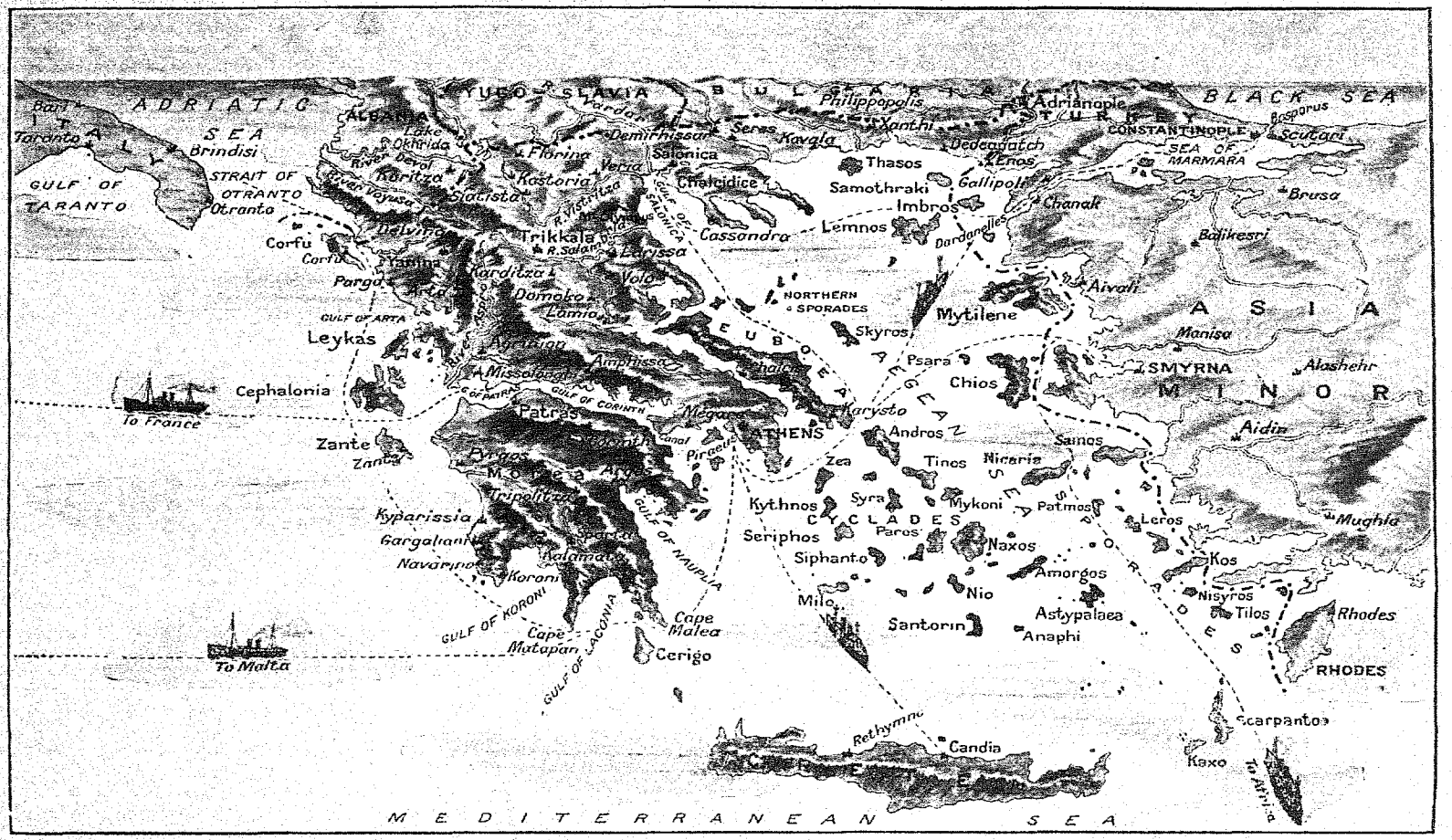
This map gives a relief picture of Rumania and Bulgaria as they might appear if we could fly high enough and had sight good enough to see them all at one glance. The principal rivers, mountains, cities, and towns are shown, and we see that both countries have a coast-line only on the Black Sea, so that their vessels, before they can reach the high seas and main routes of the world's commerce, must pass through the Bosporus, the Sea of Marmora, and the Dardanelles in order to get into the Mediterranean on the way to the ocean trade routes

THE INDUSTRIES OF RUMANIA & BULGARIA



In this map we see the principal industries, and the chief animals and plants of Rumania and Bulgaria. It will be noticed that Rumania has several of the fiercer kinds of European animals such as the bear and the wild boar, these being found in the forests at the foot of the Carpathian Mountains. Rumania is one of the great grain-growing countries of Europe, and exports wheat, barley, and maize. She also has extensive and profitable oil-wells.

GREECE WITH ITS CHIEF MOUNTAINS, RIVERS, AND TOWNS



AS THIS MAP SHOWS, GREECE, WHICH WAS A PENINSULA, IS NOW CUT COMPLETELY IN TWO BY THE CORINTH CANAL

THE WRECK OF THE HESPERUS

This beautiful poem by H. W. Longfellow is one of the finest stories in verse. The tragic tale of the wreck of the vessel, the picture of the raging storm, with the child's terror and her father's calmness, the finding of the drowned girl—all is told without waste of words, but in just the words that mean most and stir the imagination.

It was the schooner Hesperus
That sailed the wintry sea;
And the skipper had taken his little daughter
To bear him company.

Blue were her eyes as the fairy-flax,
Her cheeks like the dawn of day,
And her bosom white as the hawthorn buds
That ope in the month of May.

The skipper he stood beside the helm,
His pipe was in his mouth;
And he watched how the veering flaw did blow
The smoke now west, now south.

Then up and spake an old sailor
Had sailed the Spanish Main:
"I pray thee, put into yonder port,
For I fear a hurricane.

"Last night the moon had a golden ring,
And tonight no moon we see!"
The skipper, he blew a whiff from his pipe,
And a scornful laugh laughed he.

Colder and louder blew the wind,
A gale from the north-east;
The snow fell hissing in the brine,
And the billows frothed like yeast.

Down came the storm, and smote amain
The vessel in its strength;
She shuddered and paused, like a frighted steed,
Then leaped her cable's length.

"Come hither! come hither! my little daughter,
And do not tremble so;
For I can weather the roughest gale
That ever wind did blow."

He wrapped her warm in his seaman's coat
Against the stinging blast;
He cut a rope from a broken spar,
And bound her to the mast.

"O father! I hear the church bells ring;
O say, what may it be?"
"'Tis a fog-bell on a rock-bound coast!"
And he steered for the open sea.

"O father! I hear the sound of guns;
O say, what may it be?"
"Some ship in distress that cannot live
In such an angry sea!"

"O father! I see a gleaming light;
O say, what may it be?"
But the father answered never a word,
A frozen corpse was he.

Lashed to the helm, all stiff and stark,
With his face turned to the skies,
The lantern gleamed through the gleaming snow
On his fixed and glassy eyes.

Then the maiden clasped her hands and prayed
That saved she might be;
And she thought of Christ, who stilled the wave
On the Lake of Galilee.

And fast through the midnight dark and drear,
Through the whistling sleet and snow,
Like a sheeted ghost the vessel swept
Towards the reef of Norman's Woe.

And ever, the fitful gusts between,
A sound came from the land;
It was the sound of the trampling surf
On the rocks and the hard sea-sand.

The breakers were right beneath her bows,
She drifted a dreary wreck,
And a whooping billow swept the crew
Like icicles from her deck.

She struck where the white and fleecy waves
Looked soft as carded wool,
But the cruel rocks, they gored her side
Like the horns of an angry bull.

Her rattling shrouds, all sheathed in ice,
With the masts went by the board;
Like a vessel of glass she stove and sank,
Ho! Ho! the breakers roared!

At daybreak, on the bleak sea-beach,
A fisherman stood aghast
To see the form of a maiden fair
Lashed close to a drifting mast.

The salt sea was frozen on her breast,
The salt tears in her eyes;
And he saw her hair, like the brown sea-weed,
On the billows fall and rise.

Such was the wreck of the Hesperus,
In the midnight and the snow!
Christ save us all from a death like this
On the reef of Norman's Woe!

ST. JOHN BAPTIST

Arthur O'Shaughnessy was a brilliant young Irishman who bid fair to be a poet of enduring reputation, but died at the age of thirty-six, before he had fulfilled the promise of his early writings. He was born in 1844 and died in 1881, having been employed in the British Museum from his seventeenth year. In this noble poem the biblical references will not puzzle the young reader well versed in Bible stories. Elias of course, is another form of Elijah, and the last lines refer to the prophet speaking with God on Mount Horeb.

I THINK he had not heard of the far towns,
Nor of the deeds of men, nor of kings' crowns,
Before the thought of God took hold of him
As he was sitting, dreaming in the calm
Of one first noon, upon the desert's rim,
Beneath the tall, fair shadows of the palm,
All overcome with some strange inward balm.

He numbered not the changes of the year,
The days, the nights, and he forgot all fear
Of death. Each day he thought there should have been
A shining ladder set for him to climb
Athwart some opening in the heavens, e'en
To God's eternity, and see, sublime,
His face whose shadow passing fills all time.

But he walked through the ancient wilderness.
Oh, there the prints of feet were numberless
And holy all about him! And quite plain
He saw each spot an angel, silvershod,
Had lit upon; where Jacob, too, had lain.
The place seemed fresh, and bright, and lately trod;
A long track showed where Enoch walked with God.

And often, while the sacred darkness trailed
Along the mountains smitten and unveiled
By rending lightnings, over all the noise
Of thunders and the earth that quaked and bowed
From its foundations, he could hear the voice
Of great Elias, prophesying loud
To Him whose face was covered by a cloud.

IMMORTALITY IN SONG

The Elizabethan poets made quite a fashion of the claim that their verses would immortalise anyone about whom they wrote. In that way they magnified their skill as poets. Shakespeare did it in his sonnets; and here is an instance of the same proud claim by Shakespeare's friend, Michael Drayton, who was born in 1563 and died in 1631.

HOW many paltry, foolish, painted things
That now in coaches trouble every street
Shall be forgotten, whom no poet sings,
Ere they be well wrapped in their winding-sheet?
Where I to thee eternity shall give
When nothing else remaineth of these days,
And queens hereafter shall be glad to live
Upon the alms of thy superfluous praise;
Virgins and matrons, reading these my rhymes,
Shall be so much delighted with thy story
That they shall grieve they lived not in these times,
To have seen thee, their sex's only glory:
So shalt thou fly above the vulgar throng,
Still to survive in my immortal song.

THE LULLABIES OF EUGENE FIELD

My Little Googly-Goo

OF mornings bright and early,
When the lark is on the wing
And the robin in the maple
Hops from her nest to sing,
From yonder cheery chamber
Cometh a mellow coo—
'Tis the sweet, persuasive treble
Of my little Googly-Goo!
The sunbeams hear his music,
And they seek his little bed,
And they dance their prettiest dances
Round his golden curly head;
Schottisches, gallops, minuets,
Gavottes and waltzes, too,
Dance they unto the music
Of my googling Googly-Goo!
My heart—my heart it leapeth
To hear that treble tone;
What music like *thy* music,
My darling and mine own?
And patiently—yes, cheerfully—
I toil the long day through—
My labour seemeth lightened
By the song of Googly-Goo!

I may not see his antics,
Nor kiss his dimpled cheek;
I may not smooth the tresses
The sunbeams love to seek,
It mattereth not—the echo
Of his sweet, persuasive coo
Recurreth to remind me
Of my little Googly-Goo!

And when I come at evening,
I stand without the door,
And patiently I listen
For that dear sound once more;
And oftentimes I wonder,
"Oh, God, what should I do
If any ill should happen
To my little Googly-Goo?"
Then in affright I call him—
I hear his gleeful shouts!
Begone, ye dread forebodings—
Begone, ye killing doubts!
For, with my arms about him,
My heart warms thro' and thro'
With the oogling and the googling
Of my little Googly-Goo!

Little Blue Pigeon

SLEEP, little pigeon, and fold your wings,
Little blue pigeon with velvet eyes;
Sleep to the singing of mother-bird swinging,
Swinging the nest where her little one lies.

Away out yonder I see a star,
Silvery star with a tinkling song;
To the soft dew falling I hear it calling,
Calling and tinkling the night along.

In through the window a moonbeam comes,
Little gold moonbeam with misty wings;
All silently creeping, it asks: "Is he sleeping,
Sleeping and dreaming while mother sings?"

Up from the sea there floats the sob
Of the waves that are breaking upon the shore,
As though they were groaning in anguish, and moaning;
Bemoaning the ship that shall come no more.

But sleep, little pigeon, and fold your wings,
Little blue pigeon with mournful eyes;
Am I not singing? See, I am swinging;
Swinging the nest where my darling lies.

So, So, Rock-a-by So!

SO, so, rock-a-by so!
Off to the garden where dreamikins grow;
And here is a kiss on your winky-blink eyes,
And here is a kiss on your dimple-down cheek,
And here is a kiss for the treasure that lies
In the beautiful garden 'way up in the skies
Which you seek.
Now mind these three kisses wherever you go:
So, so, rock-a-by so!

There's one little fumfay who lives there, I know,
For he dances all night where the dreamikins grow.
I send him this kiss on your droopy-drop eyes,
I send him this kiss on your rosy-red cheek.
And here is a kiss for the dream that shall rise
When the fumfay shall dance in those far-away skies
Which you seek.
Be sure that you pay those three kisses you owe:
So, so, rock-a-by so!

And, by-low, as you rock-a-by go,
Don't forget mother who loveth you so!
And here is her kiss on your weepy-deep eyes,
And here is her kiss on your peachy-pink cheek,
And here is her kiss for the dreamland that lies
Like a babe on the breast of those far-away skies
Which you seek;
The blinky-wink garden where dreamikins grow:
So, so, rock-a-by so!

Gold and Love for Dearie

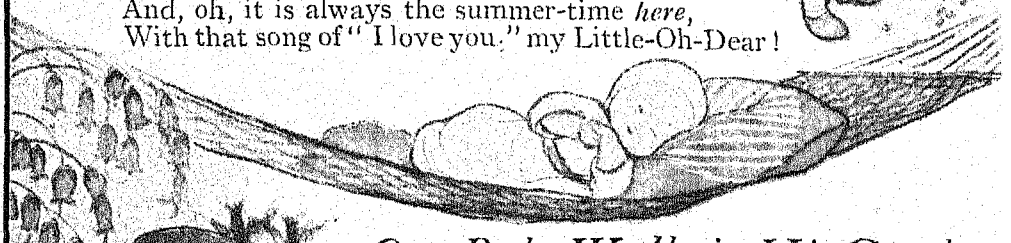
OUT on the mountain over the town,
All night long, all night long,
The trolls go up and the trolls go down,
Bearing their packs and singing a song;
And this is the song the hill-folk croon,
As they trudge in the light of the misty moon:
This is ever their dolorous tune:
"Gold, gold! ever more gold:
Bright red gold for dearie!"
Deep in the hill a father delves
All night long, all night long;
None but the peering, furtive elves
Sees his toil and hears his song;
Merrily ever the cavern rings,
As merrily ever his pick he swings,
And merrily ever this song he sings:
"Gold, gold! ever more gold:
Bright red gold for dearie!"
Mother is rocking thy lowly bed
All night long, all night long.
Happy to smooth thy curly head,
To hold thy hand and to sing *her* song:
'Tis not of the hill-folk dwarfed and old,
Nor the song of thy father, staunch and bold,
And the burthen it beareth is not of gold:
But it's "Love, love! nothing but love:
Mother's love for dearie!"

Sleep, Little One, Sleep

THE sky is dark and the hills are white
As the storm-king speeds from the north tonight;
And this is the song the storm-king sings,
As over the world his cloak he flings:
"Sleep, sleep, little one, sleep;"
He rustles his wings and gruffly sings:
"Sleep, little one, sleep."
On yonder mountain-side a vine
Clings at the foot of a mother pine;
The tree bends over the trembling thing,
And only the vine can hear her sing:
"Sleep, sleep, little one, sleep.
What shall you fear when I am here?
Sleep, little one, sleep."
The king may sing in his bitter flight,
The tree may croon to the vine tonight,
But the little snowflake at my breast
Liketh the song I sing the best:
"Sleep, sleep, little one, sleep;
Weary thou art, a-next my heart
Sleep, little one, sleep."

The Song of Little-Oh-Dear

SEE, what a wonderful garden is here,
Planted and trimmed for my Little-Oh-Dear!
Posies so gaudy and grass of such brown
Search ye the country and hunt ye the town,
And never ye'll meet with a garden so queer
As this one I've made for my Little-Oh-Dear!
Marigolds white and buttercups blue,
Lilies all dabbled with honey and dew,
The cactus that trails over trellis and wall,
Roses and pansies and violets—all
Make proper obeisance and reverent cheer
When into her garden steps Little-Oh-Dear!
And up at the top of that lavender-tree
A silver-bird singeth as only can she;
For, ever and only, she singeth the song
"I love you, I love you!" the happy day long;
Then the echo—the echo that smiteth me here!
"I love you, I love you," my Little-Oh-Dear!
The garden may wither, the silver-bird fly,
But what careth my little precious, or I?
From her pathway of flowers that in springtime upstart
She walketh the tenderer way in my heart;
And, oh, it is always the summer-time *here*,
With that song of "I love you," my Little-Oh-Dear!



Our Babe Walks in His Garden

WHEN our babe he goeth walking in his garden
Around his tinkling feet the sunbeams play;
The posies they are good to him,
And bow them as they should to him,
As fareth he upon his kingly way;
And birdlings of the wood to him
Make music, gentle music, all the day,
When our babe he goeth walking in his garden.
When our babe he goeth swinging in his cradle
Then the night it looketh ever sweetly down;
The little stars are kind to him,
The moon she hath a mind to him
And layeth on his head a golden crown;
And singeth then the wind to him
A song, the gentle song of Bethlehem-town,
When our babe he goeth swinging in his cradle.

ALL THINGS SHALL PASS AWAY

This poem was written by an American poet named Theodore Tilton. If we read it carefully we find that it is written with great skill and effect, for the poet begins by making us feel, with the Persian king, how vain are the pleasures of this world, as Death will claim them all: while at the end he restores us to hope by reminding us that Death itself will pass away and that new life will then begin.

ONCE in Persia ruled a king,
Who upon his signet ring
Graved a motto true and wise,
Which, when held before his eyes,
Gave him counsel at a glance
Fit for any change or chance.
Solemn words, and these were they:
"Even this shall pass away."

Trains of camel through the sand
Brought him gems from Samarkand;
Fleets of galleys through the seas
Brought him pearls to rival these.
Yet he counted little gain
Treasures of the mine or main.
"Wealth may come, but not to stay;
Even this shall pass away."

'Mid the revels of his court,
In the zenith of his sport,
When the palms of all his guests
Burned with clapping at his jests,
He, amid his figs and wine,
Cried: "Oh, precious friends of mine,
Pleasures come, but not to stay;
Even this shall pass away."

Fighting in a furious field,
Once a javelin pierced his shield;
Soldiers with a loud lament
Bore him bleeding to his tent.
Groaning from his wounded side,
"Pain is hard to bear!" he cried.
"But with patience, day by day,
Even this shall pass away."

Towering in the public square,
Twenty cubits in the air,
Rose his statue grand in stone;
And the king, disguised, unknown,
Gazing on his sculptured name,
Asked himself: "And what is fame?
Fame is but a slow decay;
Even this shall pass away."

Struck with palsy, sere and old,
Standing at the gates of gold,
Spoke he thus in dying breath:
"Life is done, and what is death?"
Then, in answer to the king,
Fell a sunbeam on the ring,
Answering, with its heavenly ray:
Even death shall pass away.

THE HUMAN SEASONS

John Keats was a master of the sonnet. It suited his fine phrasing and his power of packing his lines with thought. His comparison of human life with the year's seasons is entirely that of a contemplative man, not a man of action. Poor Keats only lived through his Spring. All the critics in later generations agree that his Summer and Autumn might have ranked him as one of the supreme poets.

FOUR seasons fill the measure of the year;
There are four seasons in the mind of man:
He has his lusty Spring, when fancy clear
Takes in all beauty with an easy span;
He has his Summer, when luxuriously
Spring's honeyed cud of youthful thought he loves
To ruminate, and by such dreaming high
Is nearest unto heaven; quiet coves
His soul has in its Autumn, when his wings
He furleth close; contented so to look
On mists in idleness—to let fair things
Pass by unheeded as a threshold brook.
He has his Winter, too, of pale misfeature,
Or else he would forego his mortal nature.

SWEET CONTENT

The Elizabethan poets had a marvellous power of writing songs with a charm in them that eludes description. Was ever the spirit of content more delicately expressed than in these haunting lines? The writer was Thomas Dekker, who was a younger contemporary of Shakespeare, and probably wrote with him. But certainly Shakespeare himself might well have been proud to have written these fine lines, with their music, grace, and buoyant spirit.

ART thou poor, yet hast thou golden slumbers?
O sweet content!
Art thou rich, yet is thy mind perplexed?
O punishment!
Dost thou laugh to see how fools are vexed
To add to golden numbers golden numbers?
O sweet content! O sweet, O sweet content!
Work apace, apace, apace, apace;
Honest labour bears a lovely face;
Then hey nonny nonny, hey nonny nonny!

Canst drink the waters of the crispèd spring?
O sweet content!
Swimm'st thou in wealth, yet sink'st in thine own tears?
O punishment!
Then he that patiently want's burden bears
No burden bears, but is a king, a king!
O sweet content! O sweet, O sweet content!
Work apace, apace, apace, apace,
Honest labour bears a lovely face;
Then hey nonny nonny, hey nonny nonny!

YE BANKS AND BRAES

This tender song by Robert Burns is supposed to be the lament of a deserted girl. As he loved to do, Burns calls upon Nature—the flowers and birds—to share human sorrow. The contrast between the joy of the fourth verse and the anguish of the last verse is dramatic. Staw means stole.

Ye banks and braes o' bonnie Doon,
How can ye blume sae fair?
How can ye chant, ye little birds,
And I sae fu' o' care?

Thou'll break my heart, thou bonnie bird
That sings upon the bough:
Thou minds me o' the happy days
When my fause luve was true!

Thou'll break my heart, thou bonnie bird
That sings beside thy mate:
For sae I sat, and sae I sang,
And wist na o' my fate!

Aft hae I roved by bonnie Doon
To see the woodbine twine:
And ilka bird sang o' its luve,
And sae did I o' mine.

Wi' lightsome heart I pu'd a rose
Frae aff its thorny tree:
And my fause luver staw the rose,
But left the thorn wi' me.

PIPER, PLAY!

John Davidson was a true poet, of Scottish birth, born in 1857. His life ended sadly in 1909, and the tone of his verse tended to be sad. But in these verses he tries to be gay as he describes tired workers tramping home from the factories, and feeling the simple joys of freedom and love.

Now the furnaces are out,
And the aching anvils sleep;
Down the road the grimy rout
Tramples homeward, twenty deep.
Piper, play! Piper, play!
Though we be o'erlaboured men,
Ripe for rest, pipe your best!
Let us foot it once again!

Bridled looms delay their din;
All the humming wheels are spent;
Busy spindles cease to spin;
Warp and woof must rest content.
Piper, play! Piper, play!
For a little we are free!
Foot it, girls, and shake your curls,
Haggard creatures though we be!

Racked and soiled, the faded air
Freshens in our holiday;
Clouds and tides our respite share;
Breezes linger by the way.
Piper, rest! Piper, rest!
Now a carol of the moon!
Piper, piper, play your best!
Melt the sun into your tune!

We are of the humblest grade,
Yet we dare to dance our fill;
Male and female were we made—
Fathers, mothers, lovers still!
Piper—softly; soft and low;
Pipe of love in mellow notes,
Till the tears begin to flow
And our hearts are in our throats.

Nameless as the stars of night
Far in galaxies unfurled,
Yet we wield unrivalled might,
Joints and hinges of the world!
Night and day! night and day!
Sound the song the hours rehearse!
Work and play! work and play!
The order of the universe!

Now the furnaces are out,
And the aching anvils sleep;
Down the road a merry rout
Dances homeward, twenty deep.
Piper, play! Piper, play!
Wearied people though we be,
Ripe for rest, pipe your best!
For a little we are free!

NEW ZEALAND

National hymns are seldom a high form of poetry. They have an air of being manufactured for the purpose. Our own National Anthem is such a bad example that only two verses of it are usually sung. This from New Zealand is irreproachable in sentiment, and a fair specimen of hymn-making for a special occasion. Its author is Thomas Bracken, a New Zealand poet well known in the Dominion

God of Nations, at Thy feet
In the bonds of love we meet;
Hear our voices, we entreat,
God defend our free land!
Guard Pacific's triple star
From the shafts of strife and war,
Make her praises heard afar,
God defend New Zealand!

Let our love for Thee increase,
May Thy blessings never cease,
Give us plenty, give us peace,
God defend our free land!
From dishonour and from shame
Guard our country's spotless name,
Crown her with immortal fame,
God defend New Zealand!

May our mountains ever be
Freedom's ramparts on the sea;
Make us faithful unto Thee,
God defend our free land!
Guide her in the nations' van,
Preaching love and truth to man,
Working out Thy glorious plan,
God defend New Zealand!

THERE IS A GREEN HILL

The lady who wrote this lovely hymn, so tender and simple, was Cecil Frances Alexander, wife of a bishop in Ireland who, after her death in 1895, became an archbishop and Primate of Ireland. She wrote other hymns suitable for children, and hymns suitable for children are good for all.

THERE is a green hill far away,
Without a city wall,
Where the dear Lord was crucified
Who died to save us all.

We may not know, we cannot tell,
What pains He had to bear,
But we believe it was for us
He hung and suffered there.

He died that we might be forgiven,
He died to make us good,
That we might go at last to heaven,
Saved by His precious blood.

There was no other good enough
To pay the price of sin;
He only could unlock the gate
Of heaven, and let us in.

Oh, dearly, dearly, has he loved,
And we must love Him too,
And trust in His redeeming blood,
And try His works to do.

MAN WANTS A GREAT DEAL HERE BELOW

The opening lines of this poem are quoted from Oliver Goldsmith's poem Edwin and Angelina, and the writer who here quotes and expands them was John Quincy Adams (1767–1848), the sixth President of the United States, so that the ambition he expresses was fulfilled.

MAN wants but little here below,
Nor wants that little long.
'Tis not with *me* exactly so,
But it is so in the song.
My wants are many and, if told,
Would muster many a score;
And were each wish a mint of gold
I still should long for more.

I want a warm and faithful friend
To cheer the adverse hour,
Who ne'er to flatter will descend,
Nor bend the knee to power;
A friend to chide me when I'm wrong,
My inmost soul to see,
And that my friendship prove as strong
For him as his for me.

I want the seals of power and place,
The ensigns of command;
Charged by the people's unbought grace
To rule my native land.
Nor crown, nor sceptre would I ask,
But, from my country's will,
By day, by night, to ply the task,
Her cup of bliss to fill.

I want the voice of honest praise
To follow me behind,
And to be thought in future days
The friend of human kind,
That after ages, as they rise
Exulting, may proclaim
In choral union to the skies
Their blessings on my name.

These are the wants of mortal Man;
I cannot want them long,
For life itself is but a span,
And earthly bliss—a song.
My last great want—absorbing all—
Is, when beneath the sod,
And summoned to my final call,
The mercy of my God.

O NANNY, WILT THOU GANG WI' ME?

Thomas Percy, Bishop of Dromore, in Ireland, about the middle of the eighteenth century revived an interest in old and partly forgotten poetry by collecting and publishing ancient ballads in his Reliques of Ancient English Poetry. Some of the old songs were revised and touched up by him. This he wrote himself, and it is as charming in feeling and expression as any he preserved from other writers.

O NANNY, wilt thou gang wi' me,
Nor sigh to leave the flaunting town?
Can silent glens have charm for thee,
The lowly cot and russet gown?
Nae langer drest in silken sheen,
Nae langer decked wi' jewels rare,
Say, canst thou quit each courtly scene,
Where thou wert fairest of the fair?

O Nanny, when thou'rt far awa'
Wilt thou not cast a look behind?
Say, canst thou face the flaky snaw,
Nor shrink before the winter wind?
O, can that soft and gentle mien
Severest hardships learn to bear,
Nor, sad, regret each courtly scene
Where thou wert fairest of the fair?

O Nanny, canst thou love so true
Through perils keen wi' me to gae?
Or, when thy swain mishap shall rue,
To share with him the pang of wae?
Say, should disease or pain befall,
Wilt thou assume the nurse's care,
Nor, wishful, those gay scenes recall
Where thou wert fairest of the fair?

And when at last thy love shall die
Wilt thou receive his parting breath?
Wilt thou repress each struggling sigh
And cheer with smiles the bed of death?
And wilt thou o'er his much-loved clay
Strew flowers and drop the tender tear?
Nor then regret those scenes so gay,
Where thou wert fairest of the fair?

IN AFTER DAYS

Austin Dobson, the graceful writer of these tender verses, is now mute, and it is right to say that the testimony he asks for can be paid to his memory without reserve. His modest claim will be more than granted in after days. Many a reader will visit his grave with thoughts of gratitude for verses bright with delicate humour and always pure.

In after days, when grasses high
O'er-top the stone where I shall lie,
Though ill or well the world adjust
My slender claim to honoured dust,
I shall not question nor reply.

I shall not see the morning sky;
I shall not hear the night wind sigh;
I shall be mute, as all men must
In after days!

But yet, now living, fain would I
That some one then should testify,
Saying, "He held his pen in trust
To Art, not serving shame or lust."
Will none? Then let my memory die
In after days!

THE VICAR OF BRAY

This is one of the most famous pieces of scorn in all the world, the scorn of a man who was all things to all men as long as he could keep his post—and his salary. He would be a High Churchman, a Roman Catholic, a Tory, or a Whig, or anything else that it paid him to be, and he put on his principles as he put on his coat. Honest men have nothing but contempt for men like the vicar of this old song.

In good King Charles's golden days,
When loyalty no harm meant,
A zealous High Churchman was I,
And so I got preferment.
To teach my flock I never missed:
Kings were by God appointed,
And lost are those that dare resist,
Or touch the Lord's anointed.

And this is law that I'll maintain
Until my dying day, sir,
That whatsoever king shall reign
I'll still be the Vicar of Bray, sir.

When royal James possessed the crown,
And Popery came in fashion,
The penal laws I hooted down,
And read the Declaration;
The Church of Rome I found would fit
Full well my constitution;
And I had been a Jesuit
But for the Revolution.

When William was our king declared,
To ease the nation's grievance,
With this new wind about I steered,
And swore to him allegiance.
Old principles I did revoke,
Set conscience at a distance;
Passive obedience was a joke,
A jest was non-resistance.

When royal Anne became our queen,
The Church of England's glory,
Another face of things was seen,
And I became a Tory.
Occasional conformists base,
I blamed their moderation,
And thought the Church in danger was
By such prevarication.

When George in pudding-time came o'er,
And moderate men looked big, sir,
My principles I changed once more,
And so became a Whig, sir;
And thus preferment I procured
From our new Faith's defender;
And almost every day abjured
The Pope and the Pretender.

Th' illustrious house of Hanover,
And Protestant succession,
To these I do allegiance swear—
While they can keep possession;
For in my faith and loyalty
I never more will falter,
And George my lawful king shall be—
Until the times do alter.

And this is law that I'll maintain
Until my dying day, sir,
That whatsoever king shall reign
I'll still be the Vicar of Bray, sir.

THE HOUSE OF MEMORIES

In these verses Mr. A. St. John Adcock tenderly recalls some simple dreams of early married life that have not fulfilled themselves through the stern realities of life, though they still, in spite of all, retain their glamour.

There's a little house in a little street,
A little way from the sea,
And, O, when I'm weary of all the world
It's there that I fain would be!

For the world is full of sorrow and care,
And the darkness lies before;
And the little house is full of the dreams
That were ours, but are ours no more.

In the little street, in the long ago,
In the little house by the sea,
We dreamed of the days that have had no dawn,
Of the years that shall never be.

But you were young, and I was young,
And we dreamed and had no care,
And dearer and better than life has been
Were the dreams that came to us there.

And so when I'm weary of all the world,
Of its sordid hopes and its pain,
I think of the little house that was ours,
And sigh to be there again.

AT THE CHURCH GATE

William Makepeace Thackeray, the great English novelist, did not write much verse, but this charming lyrical description shows how delightfully he could write it when he was prompted to fly. These most vivid verses were inspired by a picture showing a girl kneeling in a church with an open door, while her lover watched her from outside.

ALTHOUGH I enter not,
Yet round about the spot
Oft-times I hover;
And at the sacred gate
With longing eyes I wait,
Expectant of her.

The minster bell tolls out
Above the city's rout
And noise and humming:
They've hushed the minster bell:
I hear the organ's swell:
She's coming! she's coming!

My lady comes at last,
Timid, and stepping fast,
And hastening hither,
With modest eyes downcast:
She comes—she's here—she's past—
May Heaven go with her!

Kneel undisturbed, fair saint,
Pour out your praise or plaint
Meekly and duly.
I will not enter there,
To sully your pure prayer
With thoughts unruly.

But suffer me to pace
Round the forbidden place,
Lingering a minute,
Like outcast spirits, who wait
And see through heaven's gate
Angels within it.

GREAT-HEART

Who would not be proud to have given the boys of the world this fine appeal, as Mr. John Oxenham has done in one of the little books he has published?

WHERE are you going, Great-Heart,
With your eager face and your fiery grace?

Where are you going, Great-Heart?
To fight a fight with all my might
For Truth and Justice, God and Right,
To grace all Life with His fair Light.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To beard the Devil in his den;
To smite him with the strength of ten;
To set at large the souls of men.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To end the rôle of knavery;
To break the yoke of slavery;
To give the world delivery.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To hurl high-stationed evil down;
To set the Cross above the crown;
To spread abroad My King's renown.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To cleanse the earth of noisome things;
To draw from life its poison-stings;
To give free play to Freedom's wings.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To lift Today above the Past;
To make Tomorrow sure and fast;
To nail God's colours to the mast.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To break down old dividing lines;
To carry out my Lord's designs;
To build again His broken shrines.
Then God go with you, Great-Heart!

Where are you going, Great-Heart?
To set all burdened peoples free;
To win for all God's liberty;
To 'stablish His Sweet Sovereignty.
God goeth with you, Great-Heart!

A WINTER EVENING

The interest now of these contrasted little pictures, drawn by the gentle poet William Cowper, showing the cosiness of home and the discomfort of public assemblies in his day, is found in the change that time has brought to the second picture, as in these days the necessity of standing to hear plays or speeches is a rare exception, and not the rule.

NOW stir the fire, and close the shutters fast,
Let fall the curtains, wheel the sofa round,
And, while the bubbling and loud-hissing urn
Throws up a steamy column, and the cups
That cheer but not inebriate wait on each,
So let us welcome peaceful evening in.

Not such his evening who, with shining face,
Sweats in the crowded theatre, and, squeezed
And bored with elbow-points through both his sides,
Outscolds the ranting actor on the stage:
Nor his who patient stands till his feet throb,
And his head thumps, to feed upon the breath
Of patriots, bursting with heroic rage,
Or placemen, all tranquillity and smiles.

ON READING BURNS

The friendships of poets, and poets' praise of other poets, have produced many charming and tender verses that are among the treasures of our poetry. For there is nothing so humanly attractive as the honest admiration of one man of genius for another. One of the best things that Bret Harte wrote was his famous poem Dickens in Camp, given on page 4315 of this book, in which he praises the magic power of the great storyteller. But all great poets and authors have inspired other poets to sing of them. To Shakespeare and Burns how many poems have been inscribed! This poem by James Russell Lowell, the famous American poet, is one of the finest tributes ever paid to the genius of Scotland's greatest poet, Robert Burns.

HE spoke of Burns: men rude and rough
Pressed round to hear the praise of one
Whose heart was made of manly, simple stuff,
As homespun as their own.

And, when he read, they forward leaned,
Drinking, with thirsty hearts and ears,
His brooklike songs whom glory never weaned
From humble smiles and tears.

Slowly there grew a tender awe,
Sunlike, o'er faces brown and hard,
As if in him who read they felt and saw
Some presence of the bard.

It was a sight for sin and wrong
And slavish tyranny to see,
A sight to make our faith more pure and strong
In high humanity.

I thought, these men will carry hence
Promptings their former life above,
And something of a finer reverence
For beauty, truth, and love.

God scatters love on every side
Freely among His children all;
And always hearts are lying open wide,
Wherein some grains may fall.

There is no wind but soweth seeds
Of a more true and open life,
Which burst, unlooked for, into high-souled deeds,
With wayside beauty rife.

We find within these souls of ours
Some wild germs of a higher birth,
Which in the poet's tropic heart bear flowers
Whose fragrance fills the earth.

Within the hearts of all men lie
These promises of wider bliss,
Which blossom into hopes that cannot die
In sunny hours like this.

All that hath been majestical
In life or death, since time began,
Is native in the simple heart of all,
The angel heart of man.

And thus among the untaught poor
Great deeds and feelings find a home,
That casts in shadow all the golden lore
Of classic Greece and Rome.

O mighty brother-soul of man,
Where'er thou art, in low or high,
Thy skyey arches with exulting span
O'er-roof infinity!

All thoughts that mould the age begin
Deep down within the primitive soul,
And from the many slowly upward win
To one who grasps the whole:

In his wide brain the feeling deep
That struggled on the many's tongue
Swells to a tide of thought whose surges leap
O'er the weak thrones of wrong.

All thought begins in feeling—wide
In the great mass its base is hid,
And, narrowing up to thought, stands glorified,
A moveless pyramid.

Nor is he far astray who deems
That every hope which rises and grows broad
In the world's heart, by ordered impulse streams
From the great heart of God.

God wills, man hopes: in common souls
Hope is but vague and undefined,
Till from the poet's tongue the message rolls
A blessing to his kind.

Never did poesy appear
So full of heaven to me as when
I saw how it would pierce through pride and fear
To the lives of coarsest men.

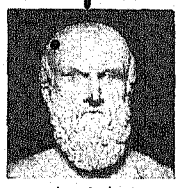
It may be glorious to write
Thoughts that shall glad the two or three
High souls, like those far stars that come in sight
Once in a century.

But better far it is to speak
One simple word which now and then
Shall waken their free nature in the weak
And friendless sons of men;

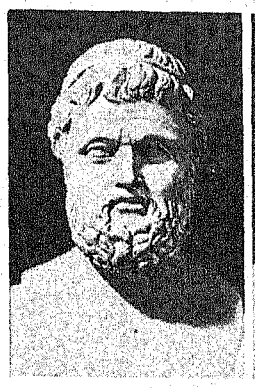
To write some earnest verse or line
Which, seeking not the praise of art,
Shall make a clearer faith and manhood shine
In the untutored heart.

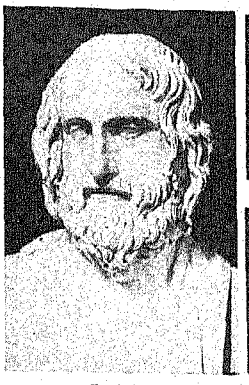
He who doth this, in verse or prose,
May be forgotten in his day,
But surely shall be crowned at last with those
Who live and speak for aye.

Imperishable Thoughts of Men Enshrined in the Books of the World


Aeschylus

Herodotus


Sophocles


Euripides

Thucydides

Aristophanes

THE LITERATURE OF GREECE

ONE night in London, just over a hundred years ago, a young and delicate man sat up into the small hours of the morning reading a book which he had never seen before.

The spell cast on his senses by this book was still over his mind as he posted to his home through the dawn-lit streets of the slumbering city, and before he lay down to rest he wrote a sonnet expressing the nature of this spell:

Then felt I like some watcher of the skies
When a new planet swims into his ken;
Or like stout Cortez when with eagle eyes
He stared at the Pacific—and all his men
Looked at each other with a wild surmise—
Silent, upon a peak in Darien.

So ends the immortal sonnet written by the boy John Keats on reading for the first time Chapman's translation of Homer. Homer's mighty line had carried him high into undiscovered heavens, and had set his feet on a peak of imagination, from which he gazed in silence across an infinite ocean hitherto unknown and unsuspected.

Who was this Homer? Long before Jesus was born in Palestine the lines of Homer rang deep music in the minds of Greek people—shepherds, field labourers, and tent-makers—and even now they are the noblest music in the world to hundreds of European scholars. A strange poet to lay so marvellous, so universal, a spell upon the soul of man. How eagerly we desire to read his story.

Alas, there is no story to tell. The libraries of the world are full of books about Homer, but if we were to read all those books through from beginning to end we should still be no wiser about the man we call Homer. The most we can say about him is this:

Long before the dawn of history or the birth of science, and long before man invented the art of writing, someone living in the country which we call Greece began to chant the legends of his country's antiquity. From father to son these tales were handed down. They formed the nation's unwritten Bible. They were what is called a saga. Every boy, desiring to know the past of his nation and the history of the world before his time, listened to this epic. It came down the ages, changing here and there on its long journey, but preserving always its majestic splendour and its incomparable simplicity, so that every child knew it by heart, and every youth set himself to become as strong, as brave, as true, and as gentle as the great heroes of his nation's past.

But the time did arrive when someone wrote these poems down, and so we have his Iliad describing the Siege of Troy, and his Odyssey telling of the wanderings of Ulysses. We can see how long a time this must have been after the real Homer lived, because he makes Homer speak of all the poetry that was in the world before his time and how difficult it is to find a theme which is not worn threadbare. And not only this: the scribe puts the poems into hexameters, a metre which comes late in the development of poetry, whereas the original saga was probably in short and simple lines. But even so, the Homer who wrote these poems down is lost to us in the mists of far ancient times.

THE MYSTERY WHICH SURROUNDS THE LIFE OF HOMER

The very name of Homer is a mystery and a difficulty. It simply means "hostage." Was he the son of a hostage, and therefore not allowed to fight in battle, which was regarded as a true man's life, but made to earn his bread in the womanly or domestic task of minstrelsy? Did he live in Chios or Smyrna? No one can tell. He is said to have been blind: but why? "We have here," says Professor Gilbert Murray, "some vague memory of a primitive time when the able-bodied men were all warriors; the lame but strong men, smiths and weapon-makers; and the blind, good for nothing else, mere singers." In all this we can see the work of a most ancient saga.

But for us, like Keats, the magic of Homer is his poetry. He tells us of days before history. He brings before us, in living form, men and women of a most ancient legend. In reading of the Siege of Troy, or the long wanderings of Ulysses, we are reading the greatest and the grandest fairy-tale in the world.

THE EARNEST POET WHO KNEW THE SADDER SIDE OF LIFE

Homer tells us this fairy-tale, not with any air of patronage, like that which a grown-up uses in telling fairy-stories to a very little child, but as if he himself believed every word to be true, and as if indeed all the strange and terrible creatures in his poems really did exist in those far-off times.

He is in earnest. He is seldom amused. The sorrows of mankind press on his heart. The beauty of Nature is filled for him with a certain mysterious sadness. He is religious and noble. Not once in all his pages does he ever vilify his country's enemies. He sees everything—the rosy fingers of the dawn and the fear in the eyes of Hector's baby son at the sight of his father's plumed helmet. He describes what he sees in matchless language. His knowledge of the human heart is surpassed only by the greatest of all the poets of mankind, our own Shakespeare. And he lived in days of which we have no sure count.

This marvel of Homer, which should make us careful in talking of evolution, is one of the things we must graft on our understanding. In reading of Greek literature we are reading of the most wonderful men that ever lived, discoverers and inventors, men who took much from the past, but created a new mind in the human body by their passionate desire to find truth. We may see what the Greeks have done for us by merely looking round our own libraries and our own streets.

GOETHE'S HIGH OPINION OF THE LITERATURE OF GREECE

In every library you will find books of *philosophy*. The word, and the thing itself, is Greek. And you will find there books of *biography*, *poetry*, *lyrics*, *dramas*, *epics*, *rhetoric*, *logic*, *history*, *mathematics*, *astronomy*, and *epigrams*. In the streets you will find *theatres*, and in the theatres you will find *orchestras*, and the plays will be *tragedies* or *comedies*, composed of *characters* who speak in *dialogue*, with *scenery* to help them, and perhaps with *music* to accompany them, and if the play is a musical comedy it will have *melodies* and a *chorus*. All these words in italics come to us from the Greeks. The Greek gave Europe the form of its culture.

As late as Goethe's day our debt to the Greeks was acknowledged in a phrase which haunts the mind. He said, "Beside the great Attic poets, like Aeschylus and Sophocles, I am absolutely nothing." And he told us, this greatest of all the moderns, in what manner Greek literature is distinguished above all others: "It is marked by grandeur, excellence, sanity, complete humanity, a high philosophy of life, a lofty way of thinking, a powerful intuition."

We may see something of this sanity in the earliest parodies of which we have any record. They were parodies of Homer, and have been ascribed even to Homer himself. Evidently some clever and

deep-thinking Greek, perhaps a cripple or a blind man, realised the folly of war, resented the eminence given to the warrior, and desired to turn men's minds away from Hector and Ajax, Ulysses and Menelaus, to thoughts and ideas less dangerous to the peace of the world and the happiness of the human heart. Thus we get The Battle of the Frogs and Mice.

We take this and many other passages from that great Greek scholar, Professor Gilbert Murray:

The battle began because a mouse . . . flying from a weasel, came to a pond to quench his thirst. He was accosted by a frog of royal race . . . who persuaded him to have a ride on his back and see his kingdom. Unhappily . . . some otter-like animal lifted its head above the water, and the frog instinctively dived. The mouse perished, but not unavenged. A kinsman saw him from the bank, and from the blood-feud arose a great war, in which the mice had the best of it. At last Athena besought Zeus to prevent the annihilation of the frogs. He tried first thunderbolts and then crabs, which latter were more than the mice could stand; they turned and the war ended.

THE WRITERS OF OLD GREECE WHO RIDICULED THE IDEA OF WAR

Thus did the wise parodist endeavour to make men see that all their grand wars, which were supposed to interest the gods, had their origin in absurdity. Other comic pieces were called a Spider Fight, a Crane Fight, and there is a poem about Fieldfares. There is also a comic poem about a mock hero of whom it is said: "Many arts he knew, and he knew them all badly"; and, "He was not meant by the gods for a digger or a ploughman, nor generally for anything sensible; he was deficient in all manner of wisdom." Thus early in their astounding history did the Greeks perceive the danger of the warlike epic, and so proceeded to make fun even of the noblest of their possessions, the great Homeric saga. Truly an astonishing and most gifted people.

Early too in their history comes Hesiod, who lived in a village on the side of Mount Helicon, the climate of which he hits off very neatly in the phrase, "bad in winter, insufferable in summer." He too, like the comic poets, wanted to make men think of useful things, and so he turned from war and romance to show the virtue of industry. "Hard work is no shame," said he, "the shame is idleness."

Professor Gilbert Murray thinks that Hesiod represents the peasant's wisdom, and that his works are a collection of a very old peasant poetry in Boeotia. Some of his sayings live to this day:

Help your neighbour, and he will help you. A neighbour matters more than a kinsman.

Take fair measure, and give a little over the measure—if you can.

Give willingly; a willing gift is a pleasure.

Give is a good girl, and Snatch is a bad girl, a bringer of death!

THE INTIMATE SIMPLICITY AND CHARM OF GREEK WRITING

Listen to his description of a certain month in the year:

. . . bad days, enough to flay an ox, when the north wind rides down from Thrace and Earth and the plants shut themselves up; and he falls on the forest and brings down great oaks and pines; and all the wood groans, and the wild beasts shiver and put their tails between their legs. Their hides are thick with fur, but the cold blows through them, and through the bull's hide and the goat's thick hair; but it cannot blow through to the gentle little girl who sits in the cottage with her mother.

Sappho, the great singer of personal melodies, has this same note of observation, this same feeling for Nature: "Like the one sweet apple very red, up high on the highest bough, that the apple gatherers have forgotten; no not forgotten, but could never reach so far."

Writing of this character brings home to us one of the great charms of Greek literature—its intimate simplicity. "You Greeks," said an Egyptian to Solon, "are always children." It is true, but in the highest sense. About Greek literature there is a freshness which is like a Spring dawn and an innocence which is as beautiful as dew. With them we are always on the mountain-top or in sight of the glittering sea, never in a physician's consulting room or a coroner's court.

THE GOD OF THE COUNTRYSIDE WHO IS SPOILT AND DEGRADED

Greek religion, in its earliest simplicity, helps us to understand the poetry of this extraordinary people. Bacchus, when the Greeks first conceived him as Dionysus, and not as he was afterwards degraded by the Romans, was a lovely god of ecstasy, who lived in the woods and haunted trees, and who represents that mysterious force in human nature which we recognise to be higher than reason—impulse,

intuition, and the inspiration which, as Wordsworth felt, flashes into the soul the certainty of its divine origin. "Dionysus," says Professor Murray, "is the god within, the spirit of worship and inexplicable joy: he appears best in communion with pure souls and the wild things of nature in the solitary mountains under the stars." Dionysus suffered degradation in the course of time, but he witnesses to us that the Greeks were conscious of that inwardness of religion which in its latest and much sadder form, and under the exquisite influence of Christianity, is known to us in the Society of Friends.

Some six hundred years before the birth of Jesus certain of the Greeks turned away from religious rites and began that investigation of natural laws which, after Aristotle, was destined to give the modern mind its greatest occupation, physical science. But while the few turned their backs on religion, regarding it as an idle superstition, the many plunged deeper and deeper into the mystical rites connected with Orphic worship. Then came the great duel between the few and the many which at last produced for Greece a victory of the human reason, from which all ages ever since have derived their greatest benefit.

How Xenophanes Influenced for Ever the Current of Man's Thoughts

Xenophanes, who lived about 550 B.C., told the Greeks that Homer and Hesiod had fastened on the gods all that is a shame and a rebuke to man. "Men have made God in their own image," he declared; "if oxen and lions could paint, they would make gods like oxen and lions." He travelled up and down Greece, tossing, as he himself put it, his troubled thoughts among the people, always telling them that "there is one God most high over men and gods," and declaring of this Supreme Power that "all of him sees, thinks, and hears; he has no parts; he is not man-like either in man or body." It was a bold thing to challenge the authority of Homer and Hesiod; perhaps a bolder thing still to denounce the priests as charlatans and ignoramuses. Xenophanes had his reward. He influenced for ever the current of man's thoughts.

This is not the place to write about Greek philosophy, and elsewhere we may read about the work of Socrates, Plato, Aristotle, and Epictetus; but even here in dealing with Greek literature pure and simple we shall find the influence of Xenophanes and all the first bold thinkers and undaunted explorers of Hellas.

Simonides, whose epigrams are delightful, shows the influence of the thinkers. He was born in 556 B.C., and was a man of wide culture, greatly travelled, a wit, a sceptic, and a penetrating thinker. "His sayings were treasured, and his poems studied with a verbal precision which suggests something like idolatry."

The Epigrams of Simonides which have Lived through the Centuries

His epitaph for those who fell at Thermopylae is still the most perfect thing of its kind: "Stranger, bear word to the Spartans that we lie here obedient to their charge." A base man and a bad poet named Timocreon ventured to attack him. Simonides replied with an epitaph: "Here lies Timocreon of Rhodes, who ate much, drank much, and said many evil things." Notice the passionless, effortless simplicity of this epitaph; and its calm disdain in making no mention of Timocreon's attempts to write poetry.

But Simonides, who has been likened to Voltaire, and is curiously modern, was disliked by the greatest of all the poets of that time, and one of the greatest in the world even now, Pindar. Our English poet Gray wrote of the pride and ample pinion

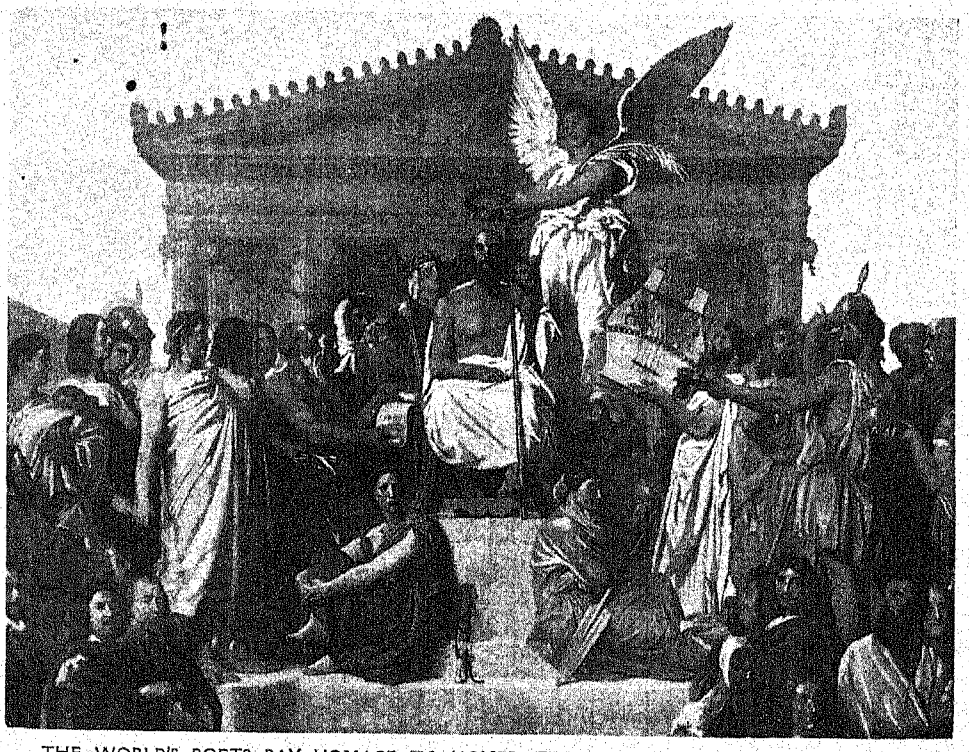
> That the Theban eagle bear,
> Sailing with supreme dominion
> Thro' the azure deep of air.

Pindar was too much of a poet to take sides with any school or to welcome any spirit so dangerous to art as scepticism. But even in his poetry we may detect the spirit of the age, for he gives to Zeus a full spiritual supremacy, and will not allow that he can be deceived or tricked, as Homer had taught.

The Treasured Works of Herodotus the Father of History

In this same age history was born, and to this day the works of Herodotus, the father of history, remain a treasured possession of educated people. He travelled about the world, listening and inquiring, and then returned to tell what he had heard and seen, going up and down Greece with his stories. Thucydides, who came later and was a greater man, despises Herodotus because, says he, the father of history did not seek Truth, but only to amuse. He was no critic, merely

THE BLIND POET OF OLD GREECE



THE WORLD'S POETS PAY HOMAGE TO HOMER—FROM THE PAINTING BY JEAN INGRES

HOMER CROWNED BY THE ILIAD AND THE ODYSSEY—BY PUVIS DE CHAVANNES

THE BLIND POET SINGING HIS SONGS IN THE STREETS OF ATHENS

a tale-teller. All the same, Herodotus guided the human mind into a new channel. We see the influence of his age on him when we read: "About the gods one man knows as much as another." Of the Persians—his country's hated enemies—he says in Professor Murray's translation:

Images and temples and altars it is not in their law to set up—nay, they count them fools who make such, as I judge, because they do not hold the gods to be man-shaped, as the Greeks do. Their habit is to sacrifice to Zeus, going up to the tops of the highest mountains, holding all the round of the sky to be Zeus.

THE EXILE WHO REFUSED TO BELIEVE IN THE GODS OF OLD GREECE

As to the Persians themselves, "he takes evident pleasure," says Professor Murray, "in testifying not only to their courage, but to their chivalry, truthfulness, and high political organisation." All this is splendid, and even noble, but the great age of Pericles was now dawning on the ancient world.

Thucydides, the great historian of the Peloponnesian War, was a soldier who had been exiled by Athens. He did not believe in the interference of the gods. He brushes religion aside. "He cares for great movements and organised forces. He believes above all things in reason, brain-power, and intelligence." Of his old age, Professor Murray has this fine passage in his book Ancient Greek Literature:

His life is over now, without distinction, his Athens ruined beyond recognition, the old mistress of his love dead and buried. But he keeps firm the memory of his real city and his leader—the man whom they called a demagogue because he was too great for them to understand; who never took a gift from any man; who dwelt in austere supremacy; who, if he had only lived, or his counsels been followed, would have saved and realised the great Athens that was now gone from the earth.

WHY GREEK LITERATURE BELONGS TO ALL THE WORLD

He sits down in this spirit to write his history, wherein Pericles lives for evermore; but he dies ere it is finished, and it is not until the reign of Augustus Caesar that his mighty book is recognised as the noblest of all ancient histories.

But for most men Greek literature is not Greek history, but Greek poetry. Even the most beautiful work of Plato and the epoch-making work of Aristotle may be claimed to belong to all philosophy and all science rather than to the literature which is essentially Greece. And outside Homer, Greek poetry means the dramatic poems of Aeschylus, Sophocles, and Euripides, with the comic writer Aristophanes as a shadowy fourth, with a smile which promises relief from too much tragedy.

Aeschylus, the father of Greek tragedy, who composed the tremendous drama Prometheus Bound, was an aristocrat who had fought at Marathon, where his brother was killed, and was among the Greeks who took to the ships and sailed for Salamis. He lived from 525 to 456 B.C. He had seen terrible things, and his plays are full of sadness and sorrow. "There is a cry in the waves of the sea as they fall together, and groaning in the deep; a wail comes up from the cavern realm of Death, and the springs of the holy rivers sob with anguish." And not only Nature suffers, but Man. The glory which shines round about a conqueror has no attraction for this soldier of Marathon. He likes a conquering king no better than he likes a political despot. One passion alone fills him with fire, it is the passion for human freedom. Of only one conqueror can he bring himself to speak, God whose will is everywhere, from whose justice no man may escape. God, he says, made for Man the road to thought, and established one abiding law, Learn by suffering.

THE HANDSOME POET WHO HAD THE TRUE SPIRIT OF THE ARTIST

Sophocles was an altogether different man, and lived his whole life (from 496 to 406 B.C.) in the sun of Athenian glory, loved by everybody, rich, handsome, amusing, light-hearted, ready to dabble in politics and take a shining part in the national life, although except as a poet he was not much good to his fellowmen.

But as a poet he was one of the greatest men in the world. He thought Aeschylus was too grand and sonorous. He aimed at a certain severity of form, like Greek architecture, and then proceeded to ease and naturalness. He was for ever working in the spirit of a true artist, striving after perfection, and knowing that form is an essential part of excellence. His Antigone is said by Professor Murray to be "perhaps the most celebrated drama in Greek literature." It is the tragic idea of useless martyrdom—"the devotion to

a higher unseen law, resulting in revolt against and destruction by the lower visible law." It has been very well translated, and should certainly be read by all who wish to acquire a knowledge of Greek tragedy. To give us some notion of Sophoclean writing, Professor Murray translates the following beautiful lines addressed by Oedipus to Theseus:

Fair Aigeus' son, only to gods in heaven
Comes no old age nor death of anything;
All else is turmoiled by our master Time.
The earth's strength fades and manhood's glory fades,
Faith dies, and unfaith blossoms like a flower.
And who shall find in the open streets of men
Or secret places of his own heart's love
One wind blow true for ever?

THE SHELTERED LIFE OF THE GREEK WHO FIRST COLLECTED A LIBRARY

When we come to Euripides we find ourselves in the presence of a strange and disturbing figure. He was born in 480 B.C. of middle-class parents, lived on a small estate in Salamis, shunned public life, avoided the society of his fellow-men, collected a library of books (he was the first Greek to do so), and wrote in a gloomy cave which faced the sea. He died in 406.

He had begun life as a patriot, and had fought for his country, but thought forced him away from all confident sentiments and confronted him with the sorrow and suffering of mankind. One of his plays begins with "a great fleet sailing triumphantly to sea, unconscious of the shadow of blood-guiltiness that rests upon it, and the gods who plot its destruction as it goes." He hated bloodshed, and regarded war as a crime. But he went even farther, or deeper, than this. In the eighteenth century men thought that they had only to be rid of kings to end war, and of priests to be rid of servitude. But Euripides knew what we only now begin to know, that republics can be as warlike as any despot, and a majority as tyrannical as any domineering priesthood.

HOW EURIPIDES DESPISED THE SOCIAL SYSTEM OF HIS DAY

Another motive which was always present in him, and now becomes predominant, is a certain mistrust of the state and all its ways—the doctrine explicitly preached to the present generation by Tolstoi. The curse of life is its political and social complication. The free individual may do great wrongs, but he has a heart somewhere; it is only the servant of his country, the tool of the "compact majority," who cannot afford one.

But the face of Euripides brightened when he turned away from the dark world to look into the faery realm of imagination. He wrote in his Andromache one of the most beautiful plays in the world, full of the pure loveliness of a noble mind and shining with the grace of a gentle heart. Professor Murray has translated many of his great tragedies, and they may be read with pleasure by those who know little or nothing of Greek history.

Aristophanes was a rich man, who owned land, hated the rabble, and paid other people to produce his plays. Born in 450 B.C., he wrote at a certain careful distance from the life of his time, seeing it in a useful perspective, and finding very little in it to be taken seriously. Even the ragged Socrates amused him, and into a play goes the inspired teacher of Plato, caricatured it is true, but a likeness that all could recognise. There was scarcely an idea of his time which Aristophanes did not consider exaggerated and a trifle absurd. But on the whole his ridicule is good-tempered, while his wit remains a delight even to our own day. Perhaps the two plays which are most typical of his mind are the Clouds and the Frogs. He died in 385 B.C.

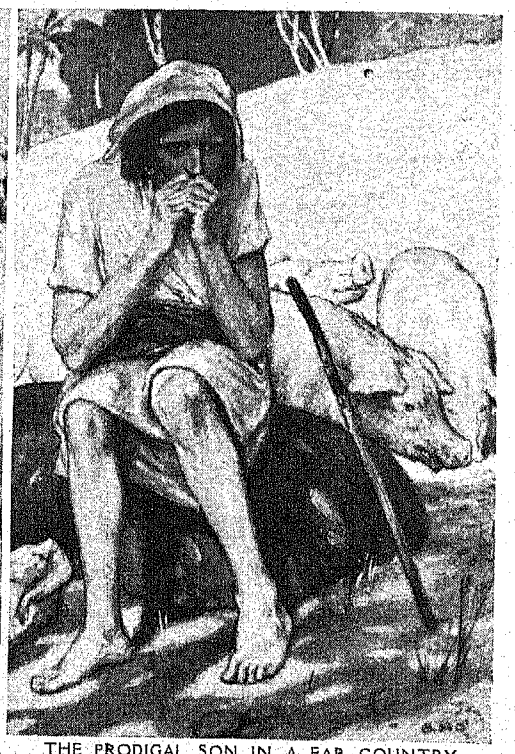
THE GENIUS OF THE ANCIENT GREEKS THAT SHOULD INSPIRE US ALL

From what we have written it will be seen that the Greeks were of all people in the world the most original; and that most of their literature is either sorrowful or tragic. This note of tragedy, or rather this strong insistence that human life is a sorrowful thing, does not weaken our admiration for their genius. Life was in those days a most dark and tragic wretchedness. The poets saw this wretchedness and confronted it with the stern eyes of a rational judgment. How could they call life a good thing when it was for ever being dragged, broken, blood-stained, and bound at the chariot wheels of some monstrous tyrant, when war was, as it were, the chief business of human existence, and religion had fallen into the base hands of a priesthood beyond contempt?

They did not know that their beautiful spirit and their brave thoughts would one day be woven into the teaching of a simple Galilean peasant, and through him would pass over the world and provide a higher civilisation for all mankind.

PICTURES OF THE TALES THAT JESUS TOLD

SOME BROUGHT FORTH FRUIT A HUNDREDFOLD



THE PRODIGAL SON IN A FAR COUNTRY

AND THEY ALL BEGAN TO MAKE EXCUSE

THE SOWER WENT FORTH TO SOW

The Story of the Most Beautiful Book in the World

The Oldest Stories in the World

THE great immortal stories of the world are few. There are countless stories that we love to read, stories that thrill us and move us to laughter or to tears; but of how many tales can we say that they will live for ever?

One or two tales that were told a thousand years ago remain, and will remain perhaps a thousand years from now. The little tales that mothers told to children centuries ago are told to children still, and we can hardly imagine the time when they will not be told. But supreme among the stories that will never be forgotten, great and short and simple, are the tales that Jesus told.

He who knew so well the heart of all mankind loved to tell a story. He talked to the people in language that they understood. He gave them little pictures that they recognised at once. He drew them round Him with a story of the Earth and lifted them with it to the Kingdom of Heaven. Here are some of the tales that Jesus told to those who listened to Him in Galilee.

THE PRODIGAL SON

Upon a younger son came the spirit of a great adventure. He took his share of his father's fortune and wasted it. In the remorse that followed his sin his heart turned to his father; in the love that followed repentance the father's heart turned to his son, and there were great rejoicings over the lost son found. But the elder son was angry; all these years he had served his father, yet there had been no rejoicing over him. We see how beautifully Jesus points out the elder son's mistake. All the father had was his, but it was right that they should make glad over the lost son come home.

A CERTAIN man had two sons, and the younger of them said to his father, "Father, give me the portion of goods that falleth to me." And he divided unto them his living.

And not many days after the younger son gathered all together, and took his journey into a far country, and there wasted his substance with riotous living. And when he had spent all, there arose a mighty famine in that land; and he began to be in want.

And he went and joined himself to a citizen of that country; and he sent him into his fields to feed swine. And he would fain have filled his belly with the husks that the swine did eat; and no man gave unto him.

And when he came to himself, he said, "How many hired servants of my father's have bread enough and to spare, and I perish with hunger! I will arise and go to my father, and will say unto him, Father, I have sinned against heaven and before thee, and am no more worthy to be called thy son. Make me as one of thy hired servants."

And he arose and came to his father. But when he was yet a great way off his father saw him, and had compassion, and ran, and fell on his neck, and kissed him. And the son said unto him, "Father, I have sinned against heaven, and in thy sight, and am no more worthy to be called thy son."

But the father said to his servants, "Bring forth the best robe, and put it on him, and put a ring on his hand, and shoes on his feet; and bring hither the fatted calf, and kill it, and let us eat, and be merry; for this my son was dead and is alive again; he was lost, and is found."

And they began to be merry.

Now his elder son was in the field, and as he came and drew nigh to the house he heard music and dancing; and he called one of the servants, and asked what these things meant. And he said unto him, "Thy brother is come, and thy father hath killed the fatted calf because he hath received him safe and sound."

And he was angry, and would not go in; therefore came his father out, and entreated him. And he, answering, said to his father, "Lo, these many years do I serve thee, neither transgressed I at any time thy commandment; and yet thou never gavest me a kid, that I might

A CERTAIN SAMARITAN HAD COMPASSION ON HIM

make merry with my friends; but as soon as this thy son was come, which hath devoured thy living, thou hast killed for him the fatted calf."

And he said unto him, "Son, thou art ever with me, and all that I have is thine. It was meet that we should make merry and be glad, for this thy brother was dead, and is alive again; and was lost, and is found."

THE SOWER

We know the sower, all of us. We meet him every day. He sows the truth in many a field, in books and pulpits and papers, in schools and market-places. And some listen and forget, some listen and care nothing; some listen and believe, and those who believe are the saviours of the world.

BEHOLD, a sower went forth to sow; and when he sowed, some seeds fell by the wayside, and the fowls came and devoured them up; some fell upon stony places, where they had not much earth, and forthwith they sprung up, because they had no deepness of earth; and when the sun was up they were scorched, and because they had no root they withered away; and some fell among thorns, and the thorns sprung up and choked them.

But other fell into good ground, and brought forth fruit, some an hundredfold, some sixtyfold, some thirtyfold.

Who hath ears to hear, let him hear.

The seed is the word of God. Those by the wayside are they that hear; then cometh the devil and taketh away the word out of their hearts, lest they should believe and be saved. They on the rock are they which, when they hear, receive the word with joy; and these have no root, which for a while believe, and in time of temptation fall away. And that which fell among thorns are they which, when they have heard, go forth and are choked with cares and riches and pleasures of this life, and bring no fruit to perfection.

But that on the good ground are they which, in an honest and good heart, having heard the word, keep it, and bring forth fruit with patience.

No man, when he hath lighted a candle, covereth it with a vessel, or putteth it under a bed, but setteth it on a candlestick, that they which enter in may see the light.

For nothing is secret that shall not be made manifest, neither any thing hid that shall not be known.

Take heed, therefore, how ye hear, for whosoever hath, to him shall be given; and whosoever hath not, from him shall be taken even that which he seemeth to have.

So is the kingdom of God, as if a man should cast seed into the ground, and should sleep, and rise night and day, and the seed should spring and grow up, he knoweth not how.

For the earth bringeth forth fruit of herself; first the blade, then the ear, after that the full corn in the ear; but when the fruit is brought forth, immediately he putteth in the sickle, because the harvest is come.

THE GOOD SAMARITAN

All men love the Good Samaritan, who would not allow pride or greed or anything else to hinder him from bringing help and sympathy to a sufferer. Even in war we help and heal a wounded foe. Go, and in all your life do likewise. Twopence in those days was a much greater sum than now.

A CERTAIN man went down from Jerusalem to Jericho, and fell among thieves, which stripped him of his raiment, and wounded him, and departed, leaving him half dead. And by chance there came down a certain priest that way, and when he saw him he passed by on the other side. And likewise a Levite, when he was at the place, came and looked on him, and passed by on the other side.

But a certain Samaritan, as he journeyed, came where he was, and when he saw him he had compassion on him, and went to him and bound up his wounds, pouring in oil and wine, and set him on his own beast and brought him to an inn, and took care of him. And on the morrow, when he departed, he took out two pence and gave them to the host, and said unto him. "Take care of him, and whatsoever thou spendest more, when I come again I will repay thee."

Which now of these three, thinkest thou, was neighbour unto him that fell among the thieves?

Go, and do thou likewise.

THE FIG TREE

One of the greatest lessons in the world the fig tree teaches us. We must live useful lives, and not cumber the ground like a barren tree; but we must have patience and not destroy whatever chances of good there may be.

A CERTAIN man had a fig tree planted in his vineyard, and he came and sought fruit thereon, and found none.

Then said he unto the dresser of his vineyard, "Behold, these three years I come seeking fruit on this fig tree, and find none; cut it down; why cumbereth it the ground?"

And he, answering, said unto him, "Lord, let it alone this year also, till I shall dig about it and dung it; and if it bear fruit, well; and if not, then after that thou shalt cut it down."

THE GREAT SUPPER

The story of the supper tells us of those who were called. Not all who hear the words of wisdom heed them; not all who are invited come. There are those who lack the grace of courtesy and the charm of friendliness; there are those whose interests are chiefly in their business or their pleasures. Such as these the Master does not need. He must have those who will bear His cross, who will share the burden of the world, who will come after counting the cost.

A CERTAIN man made a great supper and bade many.

And sent his servant at supper time to say to them that were bidden, "Come, for all things are now ready."

And they all with one consent began to make excuse. The first said unto him, "I have bought a piece of ground, and I must needs go and see it; I pray thee have me excused."

And another said, "I have bought five yoke of oxen, and I go to prove them; I pray thee have me excused."

And another said, "I have married a wife, and therefore I cannot come."

So that servant came and shewed his lord these things. Then the master of the house, being angry, said to his servant, "Go out quickly into the streets and lanes of the city, and bring in hither the poor, and the maimed, and the halt, and the blind."

And the servant said, "Lord, it is done as thou hast commanded, and yet there is room."

And the lord said unto the servant, "Go out into the highways and hedges, and compel them to come in, that my house may be filled. For I say unto you that none of those men which were bidden shall taste of my supper."

Whosoever doth not bear his cross, and come after Me, cannot be My disciple. For which of you, intending to build a tower, sitteth not down first and counteth the cost, whether he have sufficient to finish it, lest haply, after he hath laid the foundation, and is not able to finish it, all that behold it begin to mock him, saying, "This man began to build and was not able to finish."

Or what king, going to make war against another king, sitteth not down first, and consulteth whether he be able with ten thousand to meet him that

"GO OUT INTO THE STREETS AND LANES AND BRING IN THE POOR"

cometh against him with twenty thousand? Or else, while the other is yet a great way off, he sendeth an ambassage, and desireth conditions of peace.

So likewise, whosoever he be of you that forsaketh not all that he hath, he cannot be My disciple. Salt is good, but if the salt have lost his savour, wherewith shall it be seasoned? It is neither fit for the land nor yet for the dunghill, but men cast it out. He that hath ears to hear, let him hear.

THE VINEYARD

Here, as in another tale, we read of the overcoming power of good. The husbandmen beat their master's servants and killed his son; the Roman mob beat Jesus, and the Roman Empire murdered Him; but He who was rejected has become the Head of the Kingdom. Nothing can stand against righteousness; it will grind its enemies to powder.

THERE WAS A JUDGE WHO FEARED NOT GOD

THERE was a certain householder which planted a vineyard, and hedged it round about, and digged a winepress in it, and built a tower, and let it out to husbandmen, and went into a far country.

And when the time of the fruit drew near, he sent his servants to the husbandmen, that they might receive the fruits of it.

And the husbandmen took his servants, and beat one, and killed another, and stoned another. Again, he sent other servants more than the first; and they did unto them likewise.

But last of all he sent unto them his son, saying, "They will reverence my son." But when the husbandmen saw the son they said among themselves, "This is the heir; come, let us kill him, and let us seize on his inheritance."

And they caught him, and cast him out of the vineyard, and slew him.

When the lord therefore of the vineyard cometh, what will he do unto those husbandmen? He will come and destroy the husbandmen, and shall give the vineyard unto others.

Did ye never read in the Scriptures, The stone which the builders rejected, the same is become the head of the corner; this is the Lord's doing, and it is marvellous in our eyes?

Therefore say I unto you, The kingdom of God shall be taken from you, and given to a nation bringing forth the fruits thereof. And whosoever shall fall on this stone shall be broken; but on whomsoever it shall fall it will grind him to powder.

THE JUDGE

Be patient, and good will conquer evil. Truth will make its way, though it is hard. We must press forward and persevere. The Unjust Judge did justice to the widow because she wearied him; and shall not God do justice to His own?

THERE was in a city a judge which feared not God, neither regarded man. And there was a widow in that city, and she came unto him, saying, "Avenge me of mine adversary."

And he would not for a while, but afterward he said within himself, "Though I fear not God, nor regard man, yet because this widow troubleth me I will avenge her, lest by her continual coming she weary me." Hear what the unjust judge saith. And shall not God avenge His own elect, which cry day and night unto Him, though He bear long with them?

THE PHARISEE

The pretended goodness of the Pharisee is hypocrisy; nobler far is the publican's deep sorrow for his sin. The publican in those days was a gatherer of taxes.

TWO men went up into the temple to pray, the one a Pharisee and the other a publican.

The Pharisee stood and prayed thus with himself: "God, I thank Thee that I am not as other men are, extortioners, unjust, or even as this publican. I fast twice in the week, I give tithes of all that I possess." And the publican, standing afar off, would not lift up so much as his eyes unto heaven, but smote upon his breast, saying, "God be merciful to me a sinner."

I tell you this man went down to his house justified rather than the other, for every one that exalteth himself shall be abased, and he that humbleth himself shall be exalted.

HOW TO SWIM AND DIVE

SWIMMING is one of the healthiest and most enjoyable of sports. The ability to swim may enable any boy or girl to perform that greatest of all deeds—the saving of a human life.

We can learn to swim almost as soon as we can walk; the babies of the South Sea Islands, indeed, are able to swim before they are strong enough to walk, and out there any native child who is not at home in the sea would be a curiosity.

It is quite possible for us to teach ourselves to swim, especially if we are confident; but we shall learn much more quickly if we have a parent or friend who can give us a helping hand. Water is quite able to support our weight, and we can easily prove how buoyant it is by standing with the water up to our waist and then trying to touch our toes. It is almost impossible to do this, because of the lifting power exerted by the water.

For our first attempt let us walk out into the sea or bath until the water reaches just above our waist. Turning towards the shore, we should ask a companion to put one hand under our chin and the other hand under our body. Thus supported, we must hold our head well back, close our mouth, and breathe only through our nostrils.

It is, perhaps, best at first to work the arms only, so that we can fix our attention on them alone, letting our legs remain stretched out stiffly. Keeping our fingers and thumbs close together, and placing both hands just under the chin, we push our hands out as far as we can, thumbs touching, palms downward, and the backs of the hands very slightly curved, just under the surface of the water. We then turn the palms outward, and bring the arms round in a wide and strong sweep until they are in a straight line with the body.

Next we bend the elbows, bring them to our sides, and place our hands in front of our chest ready for the next stroke.

This movement is easily mastered, and we can now turn our attention to the leg-stroke. In order to do this accurately, we first gently draw both legs towards the trunk, the backs of the heels touching, and the knees and toes pointing outward; the soles of the feet should be just covered by the water. We then kick both feet out strongly at an angle to the body, so that at the finish of the kick our legs are quite wide apart, and, without pausing, we bring both legs smartly together, being careful not to bend the knees. It is mainly this last movement that drives us along, and our companion will soon find it necessary to walk along beside us.

We must not hurry in striking out with our hands and drawing up our legs, as these are negative movements. The legs should be drawn up as the arms are swept round, and kicked out as the arms are pushed forward. The breath should be taken in when the arms are wide apart. In kicking out, the best swimmers give the legs a kind of twist or screw as if working a paddle.

Should no friend be with us, we shall find that when we lean forward and push our arms out, our legs will rise toward the surface of the water.

We must next learn to swim on our backs. This is most important, as it is the one way by which drowning or unconscious persons are brought to land. It is, too, the least tiring method, and in long swims in deep water, if we turn and swim on our backs, it will enable us to rest our muscles and lungs.

The stroke is very similar to the breast stroke, only we lie on our back.

A companion may assist us by placing his hand under the hollow of the back, but if we can swim easily on the breast we shall not need help. Stretching out our arms to right and left, we must lean back on the water and lift our feet off the ground. Our legs will come readily to the surface if we keep our head well back with our ears under the water, and, if we lie quietly, we shall find that we do not sink.

To move along, however, we bring our hands to our sides. Both arms are then brought out of the water in a circular sweep, and placed in the water as far behind our head as we can reach. The thumbs should touch in performing this movement, and the hands should turn so that as they enter the water the backs of them meet. The palms are then ready to present as large a propelling surface to the water as possible when the arms are brought in a wide and powerful circular sweep just under the surface, until they lie straight along each side of the body. The legs are brought up and kicked out just as for the breast-stroke.

Should the arms be tired, they can be folded on the breast and the legs alone worked, the breath being taken during the finish of the kick-out.

THE SIDE-STROKE AND THE OVER-ARM STROKE

We now come to the side-stroke and the speedier overarm stroke.

Turning on our right side, we push out our right arm in a straight line with the body, the fingers and thumb being closed and at right angles to the surface. The palm is then turned outwards and the arm is pulled down strongly, without the elbow being bent, until it points to the bottom. The arm is then drawn in to the body by bending the elbow and turning the wrist inwards, and moved along in front of the chest until it is in a position to push out again from just under the ear.

The left, or upper, arm moves alternately in the same way, but the hand cannot go so deep, and the elbow must be bent slightly, otherwise the body would roll forward.

The only difference in the movement of the arms in overarm swimming is that the left arm is brought right out of the water and dipped slightly farther in front of the head than the hand reaches when it is not taken out of the water. The breath should be taken when the head rises well out toward the finish of this stroke, and it can be expelled quite easily when the head is under the water while the arm is swung over.

There are at present two forms of leg-stroke used in swimming on the side. In the older method both legs were drawn up under the body and kicked out widely, as in the breast-stroke. In the newer method, adopted by all the best swimmers, the knee of the upper leg is bent but little, that is to say that the left foot is never drawn up, but kicked slightly forwards. The heel of the under leg is brought back toward the body. Both legs are then brought sharply across each other as in walking, the left leg being straight as it passes the straightened right leg, and not being bent back until it has again crossed the right leg.

We can, of course, swim on our left side if it is easier to do so, and it is as well to practise swimming on both sides.

A VERY FAST STROKE

The trudgeon-stroke of the American Indians remains to be learned by any strong boy or girl who desires to move fast through the water. It is at first very tiring, and cannot be kept up for long by any but the very best swimmers. Each arm in turn performs a circle through air and water, the palms being turned away from the body as much as possible. The leg-stroke resembles that used in the side-stroke, but it is shorter and quicker.

Some swimmers give a kick for each stroke of the arm, but this is very tiring; and it is perhaps best to kick every time we make a stroke with our stronger arm, taking in breath when our head is well above the water.

Diving is a valuable and graceful accomplishment for the swimmer.

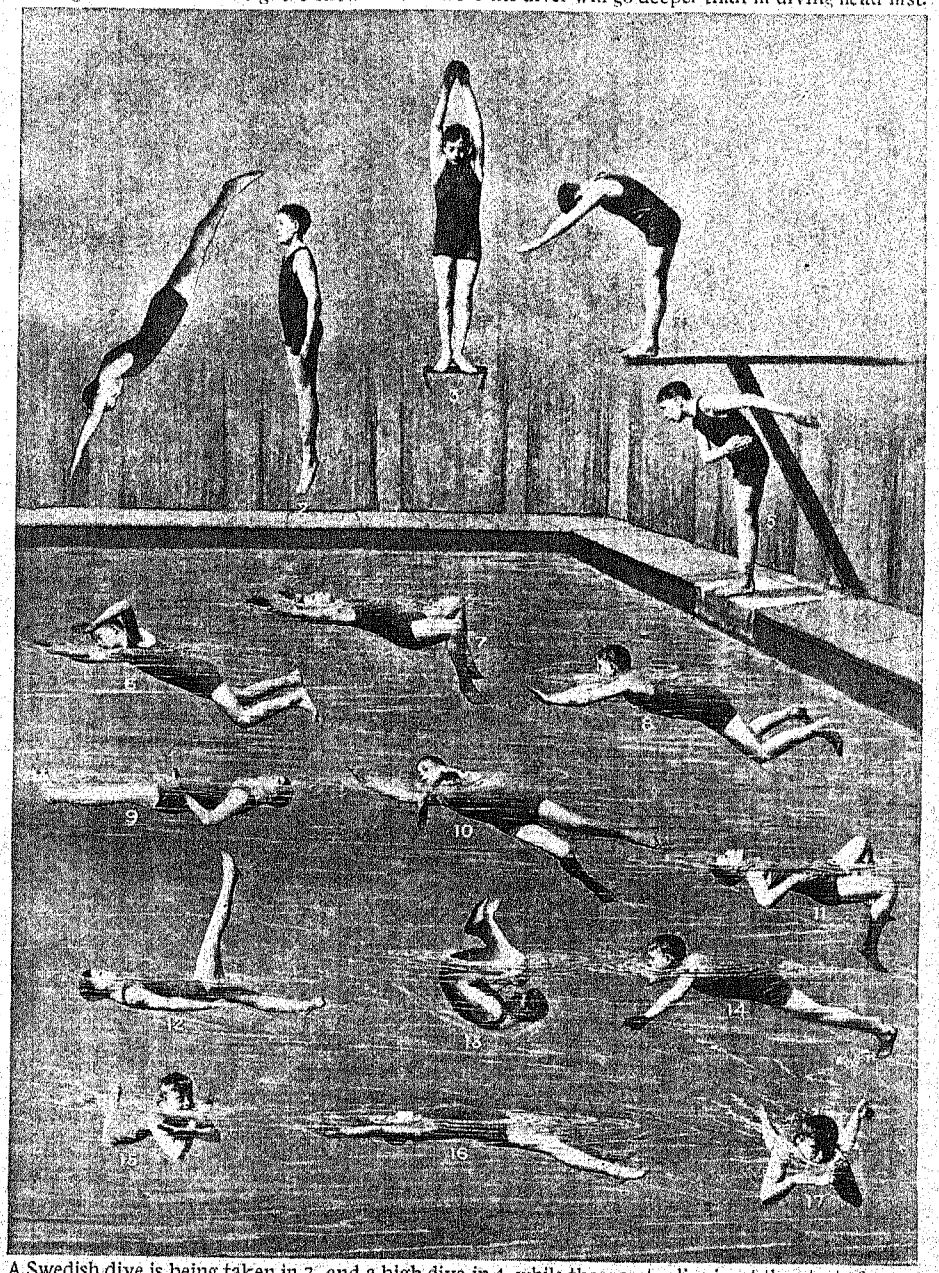
If we see a person drowning, we can always go over the boat or pier feet first, but by arriving in the water head first and arms out we can more easily and quickly take our first stroke. We must learn to keep our feet together, and legs, body, head, and arms in one straight line, as we enter the water. Thumbs should be locked and the backs of the hands uppermost.

We come to the surface of the water by raising our arms upward. In standing on a diving-board, our toes should project over the edge, and the spring taken from the balls of the feet. In diving at the start of a race we must dive as far out as we can without falling flat, and rise to the surface without a moment's delay, drawing up our legs for our first kick as we do so. We should never dive into water of unknown depth, and our eyes should be opened under the water.

The most important diving, however, is the least showy, and it is the art of going to the bottom from the swimming position. By lowering the chin on to the chest, rounding

THE ART OF SWIMMING AND DIVING

The photographs on this page give the different positions adopted in diving and swimming, and also some of the fancy tricks which we can all learn as soon as we can swim easily. How graceful it is possible to look in diving from a height is shown in 1, where the body is in almost a straight line. Diving feet first from a height is shown in 2. Here the diver will go deeper than in diving head first.



A Swedish dive is being taken in 3, and a high dive in 4, while the way to dive in at the start of a race is shown in 5. No time must be lost in coming to the surface in this dive. Three of the positions the swimmer assumes in the breast-stroke are shown in sequence in 17, 8, and 14. Swimming on the back is shown in 7, the trudgeon, or Indian, stroke in 6, the side-stroke in 10, and paddling on the back to rest the arms in 11. Of the many fancy feats, we see, in 9, the torpedo float; in 16, the dead man's float; in 12, the nautilus; in 13, turning a somersault; and in 15, swimming like a crab.

the back and swimming downward with the arms, the legs are brought up and out of the water, and their weight then drives the body down, and by swimming with the head kept well forward the bottom can be reached.

There are many tricks that can be learned, such as swimming like a dog or crab, swimming with arms and legs tied, swimming like a porpoise, the nautilus, and somersaults on the surface of the water, and some of these strokes are shown and described in the picture on page 5193.

It is sometimes necessary to remain stationary by treading water. We literally tread water as though walking upstairs, or perform the leg-stroke used in swimming on the breast while the body remains in an upright position.

There are certain things that we must not do in bathing. We should on no account be tempted to enter water beyond our own depth until we can swim at least fifty yards without a rest.

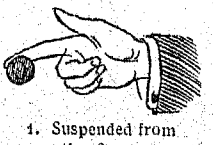
In learning we should not use cork belts, bladders, or water-wings, as these prevent the body from taking its natural position in the water. They have been known to slip, and thus cause the wrong part of the body to float and the head to sink.

We must not hurry our strokes in learning. It is quite surprising how slowly we can take our strokes and make good progress. We should never bathe within half an hour after a meal, or at any time when very hot, very cold, or when feeling very tired.

THE SUSPENDED PENNY

THIS trick, to be effective, should be performed with a coin borrowed from the company, which therefore cannot be suspected of being prepared in any way. The penny really used is one into the face of which the sharp end of a needle has been brazed, in such a manner that it shall form a tiny hook, less than an inch long, pointing toward the centre of the coin This is not easy to do, but a watchmaker or silversmith will prepare a penny for us in this way at a cost of a few pence.

This coin the performer substitutes for the borrowed one, quietly laying this last behind some object on his table, where it will be readily available at the close of the trick. Showing the prepared coin in its place, he proceeds to "magnetise" it, by breathing on it and making mysterious "passes" over it. After doing this for a minute or so he explains that the penny is now under magnetic influence, and by virtue of such influence will remain suspended wherever he chooses to place it. This it does accordingly, attaching itself with equal facility to the cloth of his vest, the back of his hand, the tip of his forefinger, as seen in picture 1, or even the tip of his nose, as shown in picture 2.



1. Suspended from the finger

2. Suspended from the nose

This is done by means of the little needle-point before mentioned. Though the point does not penetrate the surfaces against which it is laid to any perceptible extent, it does so just enough to support the weight of the coin. Strange to say, no pain or inconvenience is caused, even to the most delicate skin, by the coin being suspended from it.

This is because the needle-point barely punctures the skin, and therefore it cannot possibly hurt, as we can easily prove for ourselves by taking a needle and gently pricking the surface skin of our finger or hand. At the close of the trick, the prepared coin must again be secretly exchanged for the borrowed penny, which has been lying meanwhile on the table.

The young wizard will find the following an easy and effective way of doing this. The performer has on his table a card, either one of a pack or some other card of about similar size. As a sort of final test, he remarks: "If the influence is strong enough, the penny will even hang on to a card." He picks up the card, and makes the attempt, or, rather, pretends to do so, but purposely fails. "No, the penny is getting tired; I must magnetise it a little more." He lays down the card upon the borrowed coin, and pretends to "magnetise" the prepared one as he did before. He then picks up the card again, but secretly brings up with it the borrowed coin, held against the back of it by the fingers, the thumb lying on the face of the card. Again he endeavours to make the prepared coin attach itself to the card, but again fails. "It is no use," he says; "the power is exhausted. I return your penny, with many thanks." So saying, he brings the card into a horizontal position, and lays the prepared coin upon it, with its edge just beneath the tip of the thumb.

The performer then moves toward the lender, carrying the coin on the card, but just before he reaches him slopes the card toward himself, and lets the coin slide off into his left hand, with which he returns it to the owner.

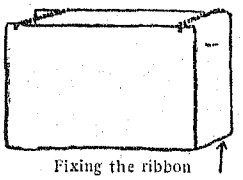
As a matter of fact, however, it is not the prepared coin which the conjurer lets fall into the hand, but the borrowed coin from the back of the card, the thumb holding back the one while the fingers release the other. If this is neatly done, no one will suspect for a moment that the coin has been changed.

When practising, it is a good plan to stand before a looking-glass to note how the trick will appear to the company, for a clumsily performed trick will give no pleasure or satisfaction to either the performer or the audience.

HOW TO MAKE A MATCH-BOX CASE

We all know how carelessly people pick up a box of matches, and forget, nine times out of ten, to return it to its usual place.

This little case will prevent all that. It can be made of half a yard of ribbon the width of a matchbox and one yard, to match, half an inch wide, to hang it up by.



Fixing the ribbon

We get a scrap of stiff muslin, and cut it the exact size of the outer cover of a match-box, minus one narrow side. We bend it round and crease it to fit; cut this in two thicknesses of muslin, and cover each one with a piece of dark, royal blue watered silk ribbon. We sew them together all round the edges with silk to match, the ribbon coming outside and the muslin sides facing, of course.

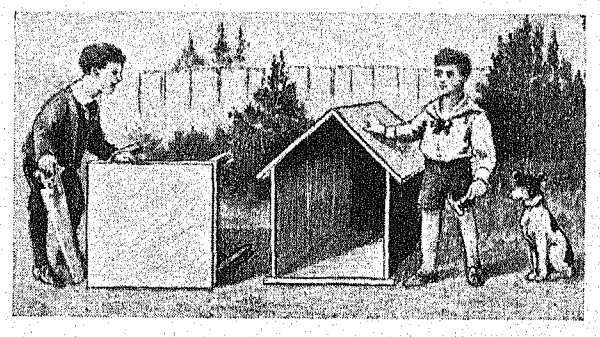
This forms the case; but we have to join it up on the open side and still leave room to strike on the box. This we do with two bars of silk at each corner, button-holed across. We can sew these on with the actual box *inside* our case, then we shall be sure of getting a tight fit. Next comes the hanger—a strip of royal blue watered ribbon, half a yard long, finished at one end with a small rosette—made of the remainder of our yard—the other end being hemmed. To these we fix the two halves of a presser clip—the kind that is used for fastening dresses.

Now comes the neatest part of our arrangement—the actual burglar-proof part of it!

In the picture is shown by an arrow where to sew the ribbon to the edge of the case. It will be fixed tightly just there with a few invisible stitches, and then the wooden cover of the match-box will be inserted in the case and the hanger ribbon threaded through the wooden cover. The matches in their little drawer are then pushed in, and the hanger clipped together round the gas-bracket. It is now impossible to remove the whole match-box without undoing the little clip, which is hidden beneath the rosette.

THE PUZZLE OF THE DOG'S KENNEL

Harry and George bought a second-hand dog's kennel for their fox-terrier Bob; but, unfortunately, the front of it was gone, and when they got it home they wondered how they were going to repair it. They had spent all their pocket-money, so they could not get the village carpenter to do the work, and there was nothing for it but to get out their tools and do it themselves.



And then arose the question of wood. Where could they get a piece large enough to cover the front of the kennel? They searched all over the garden and could see nothing that would do, and were beginning to despair, when George, who was always full of ideas, cried out:

"I know what we can do—we can use that old table with the broken legs that is in the coal-cellar."

"A good idea!" said Harry, and together the boys went to the cellar and brought up the old table. Having obtained their mother's permission to cut it up, they carried it into the garden and tried it against the front of the kennel.

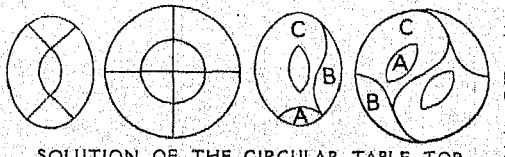
"Why, it's too small!" shouted Harry, and his face fell, for while the table-top was a little too wide, it was not high enough to reach from the bottom all the way up to the gable point of the kennel.

"Look here," said George, "you leave it to me; that is a job that wants a mathematician, and I took the maths. prize at the last exam. I know it can be made to fit."

Then with rule and pencil he made some lines on the table-top, and, after chopping off the legs, sawed the wood up into three pieces, and then put them together in another way that exactly fitted the open end of the kennel.

"Bravo!" cried Harry. "That's fine!"

Above is a picture showing the relative sizes and shapes of the table-top and kennel-end. How did George make the wood fit?



SOLUTION OF THE CIRCULAR TABLE TOP

The solution is given in Section 43 of Group 18.

The solution of the Problem of the Circular Table-top on page 5066 is clearly explained in these pictures. Mr. Brown first suggested cutting the two pieces of wood and fixing them together as shown in the two first pictures; but he actually cut and fixed them as shown in the two last pictures.

FUN WITH STOPS AND COMMAS

THE little commas and full-stops, and other similar signs that we see scattered about this page, do not seem very important. Yet, without these, it would very often be quite impossible for us to know what a writer meant.

Some sentences and paragraphs, indeed, can be made to have two exactly opposite meanings, according to how the stops are put in, and a good deal of amusement can be got by trying to punctuate correctly some of these rather difficult sentences.

SENTENCES THAT NEED STOPS

Here is a very startling statement:

King Charles the First walked and talked half an hour after his head was cut off.

We might doubt the accuracy of this, but when we know that there should be a semicolon after *talked*, and a comma following the word *after*, then the meaning is quite plain, thus:

King Charles the First walked and talked; half an hour after, his head was cut off.

Many of us know the little rhyme:

Every lady in this land
Has twenty nails upon each hand
Five and twenty on hands and feet
All this is true without deceit.

We wonder how it can be true, till it is properly punctuated in this way:

Every lady in this land
Has twenty nails; upon each hand
Five, and twenty on hands and feet.
All this is true without deceit.

When a gentleman made the remark to his friend, "Time flies you cannot they pass too quickly" he was not talking about the passing of time, but about the timing of flies. A semicolon after *cannot* makes this clear.

THE INSPECTOR AND THE MAYOR

A Prussian school-inspector called one day upon the burgomaster, or mayor, of a small town, and asked him to come on a tour of inspection of the schools in the district.

The burgomaster was not anxious to go, and the inspector heard him mutter to himself: "What is this donkey here for again?" At the first school, the inspector said he would like to examine the children in punctuation. "Oh, bother that!" said the burgomaster, anxious to get on to the next school. "What do commas and such trifles matter?" But the inspector insisted, and, writing a sentence on the board, he asked a boy to read it, which the lad did as follows: "The burgomaster says the inspector is a donkey." Then, putting commas after the words *burgomaster* and *inspector*, he asked another boy to read the sentence, thus: "The burgomaster, says the inspector, is a donkey."

In this rhyme, to make sense, a semicolon should be placed after the first noun in every line except the last of each verse:

I saw a peacock with a fiery tail
I saw a blazing comet pouring down hail
I saw a cloud all wrapt with ivy round
I saw a lofty oak creeping on the ground
I saw a beetle swallowing up a whale
I saw a foaming sea brimful of ale
I saw a pewter cup sixteen feet deep
I saw a well full of men's tears that weep
I saw wet eyes in flames of living fire
I saw a house as high as the moon and higher
I saw the glorious sun at deep midnight
I saw the man who saw this wondrous sight.

I saw a butcher not a fortnight old
I saw a greatcoat all of solid gold
I saw two buttons telling of their dreams
I saw my friends who wished I'd quit these themes.

Some years ago a London news agency received a cablegram from its correspondent in Australia which read as follows:

"Influenza extensively prevalent Wales Victoria numerous deaths Bishop Adelaide found dead sea-serpent sixty feet Coffin Bay."

This was published in the newspapers as three separate items of news to the effect that influenza was very prevalent in New South Wales and Victoria; that the Bishop of Adelaide had been found dead; and that a great sea-serpent, sixty feet in length, had been seen in Coffin Bay.

As a matter of fact, the bishop was not dead, and it was he who was supposed to have found the remains of a dead sea-serpent lying on the beach sixty feet long.

STOPS THAT COST MONEY

Some years ago the blunder of an American clerk, in putting a comma in the place of a hyphen, cost the United States nearly £500,000. A duty was to be put on certain goods going into the country, and among those to be allowed in free, were "all foreign fruit-plants," meaning young fruit trees for planting.

In copying this part of the Bill for Congress, the clerk made it read: "all foreign fruit, plants," and so on. The result was that for a year, until Congress could set the mistake right, all kinds of fruit were allowed into the United States free of duty.

A wealthy Frenchman died, and by his will left a large sum of money to his two nephews. Each expected to receive *two* hundred thousand francs, but the executors said they were entitled to only *one* hundred thousand.

The nephews pointed to a sentence in the will which read like this: "A chacun deux cent mille francs," meaning, "To each two hundred thousand francs"; but the executors pointed to a small apostrophe between the *d* and the *eux* of deux, thus making the sentence read: "A chacun d'eux cent mille francs," which means, "To each of them a hundred thousand francs."

The executors, however, had to pay the nephews two hundred thousand francs each, the law court having decided that the mark was a tiny smudge, and not an apostrophe

END OF VOLUME SEVEN

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